

RADIO AMATEUR

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Journal of the Wireless Institute of Australia



IN THIS ISSUE:

Standard Operating Procedures — WICEN
Adjusting and Cleaning Speed Keys
Review of ICOM IC-736 HF-50 MHz Transceiver
and lots more

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Cover

The "Aussie" VK6CHI DX shack on Cheyne Island. Inset: The Cheyne Island March 1994 DXpedition operators, l to r, Ron VK6LG, Mal VK6LC and Andy VK6LLL (See page 34 of the May 1994 issue of Amateur Radio for the full story).

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service

Member of the International Amateur Radio Union

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Visitor Callsigns

Each year, most capital cities around Australia receive visits from American naval ships, typically to celebrate the battle of the Coral Sea. In Sydney, the ships usually arrive at the end of the week, allow inspection tours from members of the public over the weekend, and leave on the following Monday or Tuesday.

It should come as no surprise to members that many of these ships have radio amateurs amongst their crew; some of the ships even have on-board amateur radio clubs.

As you can imagine, with these "flying" visits there is little or no time for these hams to visit the local SMA office (let alone advise them beforehand) to obtain a reciprocal licence during their short stay in Australia. To further frustrate their amateur activities, they are not able to use their club equipment while in Australian waters. At other times during their visits, the ships are on manoeuvres and the hams on-board don't have time to use their US callsigns.

This situation came to the attention of last year's NSW Divisional Council. An approach was made by Roger Harrison VK2ZRH to the local American authorities for comment and to the then DOTAC (now the SMA) with a proposal that the WIA NSW Division would take out a limited series of "special purpose licences" to be used by visiting military personnel during such visits as a goodwill gesture from the Institute.

The good news is that the SMA has at last been able to process the proposal and they have agreed to it. The special licences will use the V12 prefix and will most probably have USA, USN, USM, etc suffixes.

There are still a few minor administrative details to be put into place, but it is earnestly hoped that everything will be operational in time for this year's visits from the American navy.

John Robinson VK2XY
Alternate Federal Councillor, VK2
ar

Editor's Comment

The Blind Men and the Elephant

Many of you will know the story of the three blind men who were introduced to an elephant. One touched it on the side and said, "The elephant is like a wall". One touched it on the leg and said, "The elephant is like a tree". One touched it on the tail and said, "The elephant is like a rope". Had there been a fourth he might have felt its trunk and likened the elephant to a fire hose!

The essence of the story is, of course, that all were right, but all had found out only part of the full truth. I was reminded of this the other night by a conversation with someone, who was also there, regarding the accuracy of my report last month on the WIA 58th Annual Federal Convention. The Convention itself was the elephant, and I was one of the blind men!

My account was lacking in a few details (partly due to necessary condensation to fit limited space). In several places I referred to motions being "set aside for re-drafting". It would have been better had this been "postponed to permit more discussion later". And eventually all of these motions, only slightly modified, were carried unanimously.

However, I am sure that very few of those present at the Convention would agree with each other in every detail as to exactly what was said and done. Even the official minutes may be at variance with some people's recollections. The only way to achieve a perfect record is for each speaker to be tape-recorded and the tapes then used to augment written notes. This, in fact, used to be the practice at Conventions, but has largely now been discarded because of the many tedious hours of work involved in such detailed cross-checking.

Perhaps our annual elephant needs more blind men to touch it! Perhaps some need to be only partly blind! And perhaps some things that were said are best left unrecorded.

Bill Rice VK3ABP
ar

WIA News

Digital Conference

The American Radio Relay League has announced their 13th Conference on Digital Communications will be held in Bloomington, Minneapolis, over August 19-21 this year.

Likely topics to be covered include: data communications, computer networking via radio, protocols, packet radio hardware and software, digital voice communications, digital imaging communications, radio propagation effects, digital signal processing, spread spectrum, and state-of-the-art microelectronics. etc. Details from the ARRL.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts			1994 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Rob Apathy Secretary Len Jones Treasurer Don Hume	VK1KRA VK1NLJ VK1DH	3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each Monday evening (except the fourth Monday) commencing at 8.00 pm. Repeated on Wednesday evening at 8.00 pm on 146.950 MHz FM.	(F) \$70.00 (G) (\$8) \$55.00 (X) \$42.00	
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1068 Parramatta 2124) Phone (02) 889 2417 Freedcall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Roger Harrison Treasurer Terry Ryeland (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2PFO VK22RH VK2UX	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1030 and 1930. Highlights included in VK2WV Newcastle news, Monday 1930 on 3.593 plus 10 m, 70 cm, 23 cm. Voicemail highlights on (02) 724 8739. Some broadcast text is occasionally available on packet.	(F) \$86.75 (G) (\$8) \$53.40 (X) \$38.75	
VK3	Victorian Division 400 Victoria Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linion Secretary Barry Wilton Treasurer Rob Halley (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3KLZ	1.840MHz 3.615SSB, 7.065SSB, 53.900FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (\$8) \$58.00 (X) \$44.00	
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President Murray Kelly Secretary Lance Bickford Treasurer Roger Bingham	VK4AK VK4ZAZ VK4HD	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz, 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (\$8) \$58.00 (X) \$44.00	
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3426	President Garry Herden Secretary Maurie Hooper Treasurer Bill Wardrop	VK5ZK VK5SEA VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 26.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATVs Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) \$70.00 (G) (\$8) \$55.00 (X) \$42.00	
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 388 3888	President Cliff Bastin Secretary Ray Sparro Treasurer Bruce Hedland-Thomas	VK6LZ VK6RR VK6DO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.165, 28.345, 50.150, 438.525 MHz, Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (\$8) \$46.50 (X) \$32.75	
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Andrew Dixon Secretary Ted Beard Treasurer Peter King	VK7GL VK7EB VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (\$8) \$55.55 (X) \$40.00	
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.	

Note: All times are local. All frequencies MHz.

Equipment Review

ICOM IC-736 HF/50 MHz Transceiver

Reviewed by Ron Fisher VK3OM*



The ICOM IC-736 HF/50 MHz transceiver.

I often wonder if manufacturers of amateur equipment ever read reviews published in various magazines around the world. With the introduction of the IC-736 I am beginning to think they just might. Why? Well, most of my predictions in my review of the IC-737 in the August 1993 issue of *Amateur Radio* have come about in the new IC-736. The only thing I got wrong was the type number. I guessed it would be the IC-739. If you have a copy of August 1993 *Amateur Radio*, get it out as a comparison between the IC-737 and 736.

In basis, the difference between the two is the addition of an inbuilt AC power supply and 100 watts of RF on six metres. There are other improvements as well, but more about them later. Appearance is identical to the IC-737 and all the excellent features of that model have been retained in the 736. The superb LCD multi function readout is retained. This is possibly the clearest display being produced at the present time. But, if you don't have a copy of the IC-737 on hand, let's make a clean start and give you a full description of the new IC-736.

IC-736 Features and Facilities

The IC-736 is a reasonably large transceiver but not as big as, say, the ICOM IC-765. Dimensions, excluding a few projections on the rear panel, are 330 mm wide, 111 mm high and 285 mm deep. The overall weight is 10.5 kg. When you consider that all of this includes an all band transceiver that also covers six metres, a built-in AC power supply and an automatic antenna tuner which also operates on six metres, then you will have some idea of just what can be done these days. It is by far the most compact and lightest transceiver on the market with all of those facilities. In fact, it might well be the only transceiver of any type to include all of this.

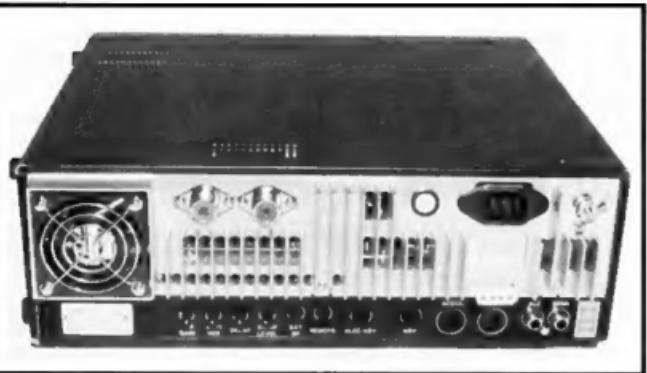
The light weight is helped by the fact that the power supply is of the switched mode type. ICOM is one of the very few amateur gear manufacturers who have consistently produced high quality switched mode power supplies. I know that opinions are divided on these supplies but at least this one works very well indeed. Only time will tell on its reliability but my guess is that it will be OK.

One of my complaints with the IC-737 was the lack of metering. This has been greatly improved on the IC-736. Front panel metering selection is available for power output, SWR and ALC with the meter switching to "S" meter on receive. All of this is not perfect but lots better than the earlier model. The various metering positions are selected in sequence by pushing the "meter" button which has now been added to the front panel.

Another of my complaints with the IC-737 was the lack of an RF gain control. The IC-736 has one but in the strange way that Japanese manufacturers seem to think, the RF gain has been positioned on the front panel as a very minor control. I have always been of the opinion that RF gain should be with the AF gain. For some reason ICOM (and others) prefer the squelch control to be ganged with the AF gain. I wonder why? At least now there is an RF gain which works well despite its poor positioning and the extremely small size of the control knob.

The IC-736 covers all amateur bands including six metres with all modes available. Take your choice of SSB, CW, AM and FM. The transceiver is fitted with three filters as standard, a 2.1 kHz one for SSB and CW, a 6 kHz one for AM and a 12 kHz filter for FM. Four narrow CW filters are available as options. Two working at 455 kHz give either 500 or 250 Hz bandwidth and two for 9 MHz with the same bandwidths. ICOM recommend either one or two of the same bandwidth should be installed. They were not included in our review transceiver so I am unable to comment on their performance.

Another new feature on the IC-736 is one Hz tuning and readout. I guess it had to happen. I well remember when transceivers first featured 10 Hz readout. The one Hz tuning rate and readout is selected by pushing and holding down the "TS" button. In its standard state the stability and accuracy of the IC-736 is not quite up to a one Hz readout. Perhaps it might be with the optional high stability master oscillator. It would be interesting to see. However, it does give a very smooth and slow tuning



Rear view of the IC-736.

rate which would be excellent for digital modes.

Actually, the tuning system of both the IC-737 and 736 is one of the most comprehensive offered on any transceiver with the "TS" button being programmable for various tuning steps to suit all tastes.

On the transmit side, the automatic antenna tuner covers all amateur bands from 160 to 6 metres. There are, again, two antenna connectors, now of course more important with the six metre coverage. The selection of antenna connector is either via the front panel "ANT" switch or they can be programmed to operate from the band selection mode.

Again the transmitter includes a speech compressor to add some punch to the audio. The compressor control has been relocated to the rear panel to make way for more important controls. Unfortunately, the improved transmitter metering does not include a compression scale so its adjustment is still a bit hit and miss.

IC-736 On The Air

I am going to reverse the usual procedure and put the transmitter tests first. For SSB I used the supplied HM-36 hand microphone and also an SM-6 desk microphone that I keep as spare. I will have a bit more to say about the HM-36 later in a separate, short review.

Like the IC-737, reports showed that intelligibility was good but the overall quality was not all that good. At least, now with ALC metering, it is easier to

set the transmitter up to avoid over driving. The speech compressor was most effective in adding some extra talk power to the signal and even appeared to improve the speech quality slightly. The main complaints with the audio were lack of low frequency response and a degree of harshness. It appears that the harshness is introduced in the low level stages of the transmitter as the actual signal is quite clean as far as intermodulation distortion is concerned.

"The speech compressor was most effective in adding some extra talk power to the signal . . ."

The SM-6 desk microphone was reported as having a smoother sound but still lacking in low frequency response. The transmitted wave form looked good on the scope and our IMD tests showed that the new high voltage final amplifier was distinctly better than the usual 12 volt operated final stages.

AM transmit quality was not checked this time. FM appeared to be OK but again with similar characteristics to the SSB audio reports. On CW the IC-736 keyed very smoothly with no reported key clicks or spreading. I used a normal straight key for my tests. The rig features full break-in keying.

The cooling system on the IC-736

is most effective. There are two large fans, one on the rear panel (see photo) and one internal. They are very quiet in operation.

Now to the receiver. The first thing noticed is the smoothness of the main tuning control. The RIT and XIT have a range of +/- 9.999 kHz (yes, the RIT reads out to one Hz). They are controlled by two push buttons in a very ingenious manner. A quick push selects either function but if the button is held down for a second or so the offset returns to zero. Band selection is very straight forward with a button on the keyboard for each band. To include six metres the 29 MHz button on the IC-737 has been reallocated for 50 MHz on the IC-736 but, with the double band stacking register, you will probably not miss this.

The superb memory system of the IC-737 is again with us in the new rig. There are 101 memory channels which include 10 split memories and 2 scan edges. In addition there are the 10 memo pads for quick memory writing.

VOX is now fitted to the IC-736. The original IC-737 did not have this but it was later included in the IC-737A. The VOX controls are all mounted on the rear panel which is a little inconvenient but, once set up, they appeared to be very stable. I used the VOX for several contacts and none of them picked that I was, in fact, using VOX. Clipping of the first syllable was not noticed. If you use VOX (not many amateurs do these days) you will find it excellent.

Rear panel interfacing is, as usual with ICOM gear, comprehensive. In addition to the two antenna connectors there are two accessory sockets for connection to ICOM linear amplifiers and other options. Another socket is used for a TNC for data communication. If you wish to use a non ICOM linear amplifier two phono connectors provide relay control and ALC output. One very good point about the rear panel is that the heat sink does not protrude very far out so it is easy to reach over the top of the cabinet to make connections.

To summarise. The IC-736 is a delight to operate. The receiver is top quality on SSB and CW (with the optional filters), good on FM but could

be better on AM. As with the earlier IC-737, the receiver front end is bomb proof. The tuning will amaze you with its selectable one Hz steps (200 Hz per knob revolution). The transmitter puts out a very clean signal but with less than perfect SSB audio quality. CW transmission is first class and the whole transceiver runs very cool.

ICOM MH-36 Hand Microphone

The microphone supplied with any transceiver is an important part of the whole setup. I intend to make a separate report on microphones in each review I do in future. The HM-36 is better known as the HM-12 which has been supplied with ICOM equipment over the last several years. The difference is that the HM-36 does not have the rear switch to disable the up/down buttons. It uses an electret element but, contrary to popular opinion, does not have a built-in pre-amp. There is an internal circuit board containing a few components to feed the required DC voltage to the electret microphone. The PTT switch bar operates a micro switch which gives an excellent feel. You know exactly when it operates. The microphone fits into the hand very well and the up/down buttons are easy to use.

However, the audio quality from this microphone has always left me in some doubt and I intend to do some modifications on the internal circuit in

the near future. I would like much more low frequency output and this might be possible with a change to the size of the microphone blocking capacitor. I will keep you posted. Sometime in the future, I hope I might be able to report on some other ICOM desk microphones.

IC-736 On Test

I carried out the usual series of tests on the IC-736 but this time I looked at the six metre performance in some detail. However, as usual, I started with transmitter power output. As the transceiver is AC operated with no provision for external DC input, no tests for current drain were possible. Power output is variable on all modes via the small "RF PWR" control.

Power output CW Mode

Band Power Out

160	124 watts
80	120 watts
40	116 watts
30	115 watts
20	113 watts
18	110 watts
15	110 watts
13	110 watts
10	107 watts
6	100 watts

On SSB the PEP output was just slightly higher than the above figures. Maximum AM power output was 40 watts but I found it was necessary to reduce this to about 25 watts in order

to achieve 100% modulation. FM output was the same as the CW output and the IC-736 has a 100% duty cycle which means you can run full output all day.

The IC-736 specification does not include a figure for transmitter intermodulation distortion, but the advertising brochure does show a spectrum analyser graph of the IMD characteristics. Although the actual figure is not mentioned it appears to be about -30 dB referred to a two tone signal. The same IMD tests were carried out that we have used before on HF transceiver tests (see TS-50S review, *Amateur Radio June 93*) and we arrived at a figure of -32 dB which is 5 dB better than the IC-737. This improvement is due to two factors. The MOS-FETs in the driver and final stages of the transmitter, and the 50 volts applied to them courtesy of the built in AC power supply.

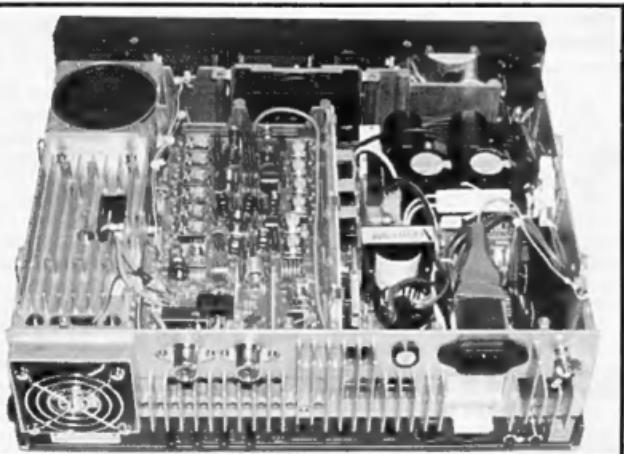
Receiver Tests

Firstly, the "S" meter calibration was checked. I did two sets of figures, one at 14.2 MHz and the second at 51 MHz. The difference is surprising. I had the pre-amp switched in and used the USB mode.

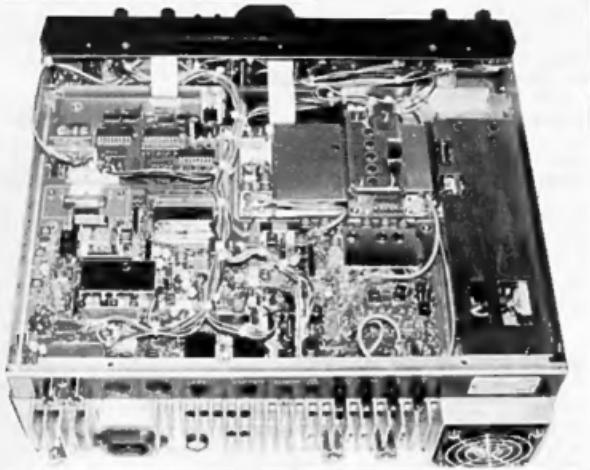
"S" Reading	14.2 MHz	51 MHz
S1	1.4µV	.38 µV
S2	1.6µV	.45 µV
S3	2.0µV	.6 µV
S4	2.7µV	.75 µV
S5	3.6µV	1.0 µV
S6	5.0µV	1.3 µV
S7	7.0µV	1.8 µV
S8	12µV	2.5 µV
S9.	20µV	5.0 µV
+20dB	280 µV	—
+40dB	2000 µV	—
+60db	.015 V	—

I did not make any measurements on 51 MHz above S9. Readings for S9 between 1.8 and 30 MHz were consistent with a maximum variation of less than 2 dB. The pre-amp was measured at exactly 10 dB and the attenuator at -20 dB.

AGC threshold was about 1.5 µV and increasing the output of the signal generator to full level produced an audio output increase of less than .5 dB, an excellent figure. The AGC action was very well controlled but I would have preferred a slightly slower decay time for SSB. With an RF gain



Top view of the IC-736 with the top cover removed.



Bottom view of the IC-736 with the bottom cover removed.

control now included this can be compensated for quite easily.

Receiver sensitivity was measured in the SSB mode at 14.2 MHz with

the pre-amp in. It was .14 μ V for 10 dB SINAD, a slight improvement over the IC-737. AM sensitivity was the same as the IC-737, 2.0 μ V at 14 dB

SINAD. Sensitivity at 51 MHz, again in the SSB mode, was .12 μ V for 10 dB SINAD. I thought this time a frequency response run on AM might be of interest. I was not happy with the sound of AM on the IC-737 and the 736 didn't sound any better. Here are the results. A modulation depth of 30% was used.

100 Hz 250 Hz 500 Hz 1 kHz 1.5 kHz 2 kHz 2.5 kHz 3 kHz
 -16 dB -6 dB -1dB 0 dB -1 dB -3 dB -8 dB -15 dB

Not exactly hi-fi is it? I know we are talking about a communications receiver but I think it should be better than this.

The next tests were for audio power output and distortion on SSB and CW. An audio power meter and a noise and distortion meter were connected to the external speaker socket on the rear of the IC-736. The specified load impedance is 8 ohms but tests were also carried out with a 4 ohm load. Maximum audio power at 8 ohms was 3.4 watts and at 4 ohms this increased to 4.8 watts. Of course the distortion was very high at these figures but the specified 2.6 watts at 10% distortion was easily

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met. Note that this is a slight improvement over the IC-737. However, the best is yet to come.

At an output of 250 milliwatts the distortion at 1 kHz was only .3%. This is the best that I have ever measured on an amateur transceiver.

The audio frequency response for SSB was measured with the -6 dB points at 250 Hz and 2.5 kHz with a high end roll-off of -10 dB at 2.75 kHz. I next measured the effectiveness of the notch filter. When reporting on the IC-737, I noted that there was a drop of 6 dB as soon as the filter was switched in. This problem has been eliminated. There is only a .5 dB drop in audio level on the IC-736 when the filter is switched in. The overall range of the notch filter is 500 Hz to 3 kHz and the overall notch depth was measured at -28dB.

Finally, I did an extended test on frequency stability and readout accuracy. Over a several hour period the drift did not exceed 40 Hz. With the one Hz readout on the IC-736 it was easy to follow any drift that occurred but I would like to try a transceiver fitted with the optional CR-282 high stability crystal unit. I still wonder why equipment manufacturers don't fully option transceivers for reviewers to test. If they don't do this, just how do they evaluate these options themselves. I can't imagine that they wouldn't want

to try them out. The same thing applies to CW filters. The only time we get to evaluate them is when they are included as standard which is not too often these days.

With the exception of the AM receive frequency response, the performance of the IC-736 is almost beyond reproach. The SSB transmit quality is not to my liking but perhaps this is a matter of opinion. Many amateurs contacted reported that it sounded fine. However, I think that ICOM should take a hard look at this aspect of their transceiver's performance.

IC-736 Instruction Manual

The IC-736 instruction manual is typical of all ICOM manuals. It is clear and to the point with no frills. With the exception of some clear photos at the rear of the book that indicate many of the adjustment points and location of the main circuit boards, all other illustrations are line drawings. In many ways, these line drawings are clearer than photos.

In general, operating instructions are very well covered and I would recommend that new owners should read the manual first off. Many of the rig's functions are not self evident and you just might miss out on many things that will add to the pleasure of operating this fine transceiver.

Unfortunately, ICOM still deny us an insight into the technical aspects of how this transceiver works. Again, I score the manual eight out of ten.

IC-736 Conclusions

The changes that ICOM have made to the IC-737 to convert it into the IC-736 have produced a completely new class of transceiver. I imagine that ICOM must be wondering about the future of the big and expensive IC-765 which, in comparison to the IC-736, is now looking very outdated. In the same way, the IC-736 must now make the IC-737 redundant. By the time you add the cost of a power supply, the obvious way to go is to spend the little extra and go for the IC-736 with all the extra benefits that it offers. If the transmitted audio quality is to your liking then the IC-736 is the best value base station transceiver on the Australian market. It is, of course, compatible with the full line of ICOM ancillary equipment that includes linear amplifiers, automatic antenna tuners (not really needed with the IC-736), microphones and external speakers.

The IC-736 sells for \$3692.43. My thanks to ICOM (Australia) Pty Ltd and Duncan Baxter for the loan of the review transceiver.

24 Sugarloaf Road, Beaconsfield Upper, VIC 3080

WIA News

Audience boost for Radio Australia

Australia's shortwave broadcaster, Radio Australia, is aiming to boost its listening audience round the world with the completion of a \$9.5 million transmitter facility at its Cox Peninsula site outside Darwin in the Northern Territory.

Two new 250 kW transmitters were officially turned on in late May by Senator Bob Collins, Minister for Primary Industries and Energy, standing in for the Minister for Communications, Mr Lee.

This brings the number of transmitters at the site to five, three

of which will be operational at any one time. Senator Collins said the new transmitters will ensure Australia's voice is heard reliably in many countries of the world.

The new transmitters, built by the French communications specialist Thomcast, feature a fully solid-state drive chain right through to the single vacuum tube output stage, and a full solid-state modulator.

They replace 1969 vintage transmitters built by the Collins company. An ironic twist of fate that Senator Collins commissioned the Collins transmitters' replacement.

Same hat, new name

David Wardlaw VK3ADW, the WIA's Federal International Regulatory and Radiocommunication Study Group (RSG) Coordinator, in his report to the annual Federal Convention recommended a name change to his position owing to the considerable changes occurring in the structure and operations of the International Telecommunications Union.

His recommendation was adopted by the Federal Convention and David is now the ITU Conference and Study Group Coordinator.

WICEN Standing Operating Procedures

Trevor Connell VK8CO* Northern Territory WICEN Coordinator

I have recently observed that a couple of States are writing or intending to write WICEN Standing Operating Procedures (SOP). I am surprised that it has taken so long and VK8 is no exception.

The purpose of this article is to stimulate thought and discussion on how and what we write up before it's all done eight different ways.

My observations are that several States' WICEN have a variety of books which provide (sometimes) voluminous amounts of information to operators and, I assume, they are expected to sift through it for the odd bit which may indicate procedures to be followed.

Why is there not something specifically dedicated to listing any

plan/procedure which would, in the first instance, be followed? These are usually called Standing Operating Procedures (note Standing not Standard).

I recall reading a manual once but at the end of it I couldn't help thinking that if I was new to the organisation there, I still didn't have much idea as to what I would be expected to do or how things would be done.

The purpose of an SOP is to explain or list a series of actions which are to occur automatically given specific conditions, eg search and rescue comms, cyclones, etc. It should not be ambiguous but still have a degree of flexibility when required. They should not be waffly but short and concise. The flexibility

I feel is important because as most will agree, events don't always unfold as we would want them to.

SOPs should be written about everything. A few suggestions are:

Administration

- WICEN organisation and policy.
- Everyone's duties. Everyone needs to know who is expected to do what.
- Uniform requirements and any other supplies required.
- The paperwork required of a State Co-ordinator down to the operator, how to fill them out, what to do with them and when.
- What procedures are required to run an exercise.
- How to make a claim for expenses.

Operations

- How are activations effected.
- What does the operator do when activated — assembly point, mobile comms.
- Details of installations — patch leads required
- How does the NCS run — duties, radios, furniture, layout?
- Administration and logistics procedures.

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10/2/70CM, 15-10/2/70CM

- Network operation — free, directed, freqs PRI and ALT for each mode, callsign allocation, Log requirements.
- Radio Net Diagrams
- Who will feed you.
- What hierarchy exists.
- How will briefings be conducted — format.
- How will debriefs be conducted — format.
- Who is responsible for...

Specific Occurrences

- What occurs when a cyclone threatens. How will comms be organised, timings, modes, callsigns, frequencies, stages.
- Bushfires — who is called out first, then later. Who deploys repeaters, digipeaters and at what point in time. How would an operator expect to be called out, briefings. What equipment is required. Resupply arrangements, mobile comms, etc.
- Comms support for..... How.

SOPs should be numbered, eg SOP 1 — ACTIVATION, as should each paragraph, 1.01, 1.02 for easy reference. Each SOP should deal with only one subject. They should be definitive, eg This person is to do this at.... These reports are to be submitted... Annexes to an SOP provide for Radio Net diagrams, Equipment Lists, Sample paperwork and the like, not suited to be included in the procedure description.

There are not too many options for the format for SOPs. My suggestion is that used by the NDO Manuals.

There must be provision for amending. There must be an Amendment List page. I would be suspicious of a book full of procedures that doesn't require amending at some stage. Each SOP would, ideally, be numbered to ensure that each receives amendments.

The SOPs can be in a ring binder for ease of page replacement and protection for them. How does the operator carry them? Right beside his ID card. My suggestion is that they be in A5 size. This fits into packs and boxes without getting destroyed from folding. A plastic bag over them keeps the water off.

It would be difficult to cover every possible heading. Each Division will

have differing commitments and procedures. This is not a problem so long as your operators know and aren't mushrooms. Operators from outside your district would have some idea before arrival if SOPs exist.

It is obvious that all the above information is known by someone, hopefully those that need to know but I sometimes think that too much is in the heads of Coordinators and the experienced few. I have yet to come across any procedure that is not advantageous for the operator to be aware of even though he/she may not be directly affected. This point is probably open for debate.

Other organisations that you work with will possibly need a copy for their information. It presents an organised, professional approach if you can flash a set of these. Given the level of organisation in WICEN now, SOPs are the next logical step.

If you are writing SOPs the acid test is to give them to someone not

familiar with them. Having read them they should have a fair understanding of what you are trying to get across. If not it's back to the drawing board.

To recap, SOPs should be:

- Numbered
- Paragraphed and set out in a logical sequence.
- Each SOP to deal with one subject.
- Short, concise and definitive.
- Easily understood.
- Able to be amended
- Be a convenient size.

In this article I have given a description of what is generally considered to be Standing Operating Procedures. They are necessary for standardising responses and are an important document in recording the actions to occur and responsibilities. Maybe nationally we can standardise on something before much more is done.

'PO Box 40441, Casuarina, NT 0811 VK4CO@VK4DA

WIA News

Federal WIA Appointments

The annual Federal Convention saw some changes to the Federal Council and Executive which, for 1994-95 consists of:

Richard Jenkins VK1RJ
Roger Harrison VK2ZRH
Alan Noble VK3BBM
Ross Marren VK4AMJ
Bill Wardrop VK5AWM
Bruce Hedland-Thomas VK6OO
Jim Forsyth VK7FJ

As already advised, Kevin Olds VK1OK stepped down as Federal President. Council thanked him for his efforts over the past year which was very active for the Federal company.

Neil Penfold VK6NE, the 1993-94 Vice-President, was elected 1994-95 Federal President, and Roger Harrison VK2ZRH was elected 1994-95 Federal Vice-President.

In addition, Gavan Berger VK1EB, Alternate Federal Councillor for VK1, was appointed the WIA-SMA Liaison Officer.

Support for ARDF team

Intrepid Amateur Radio Direction Finding enthusiast and veteran of international ARDF contests, Wally Watkins VK4DO, has been allocated funding of \$500 to assist attendance at the IARU Region 1 ARDF contest in Europe in September.

Wally headed a team of three representing Australia at the IARU Region III ARDF contest held in the Peoples Republic of China last October. These contests are a cross between a pedestrian foxhunt and cross-country marathon. You need not just good DF skills but have to be quite fit into the bargain!

Wally is to be an accredited observer for the WIA at the IARU Region III meeting in Singapore in September as he will be there on his way to the European ARDF contest.

Adjusting and Cleaning Speed Keys (Bugs)

"Doc" Wescombe-Down VK5HY/VK4CMY* provides some useful tips on caring for your "bug".

Apart from the single page instruction sheet which accompanies "Vibroplex" speed keys (known in the operators' trades as "Bug Keys") there is very little information readily available on how to adjust a bug. Perhaps the onslaught of electronic keyers has nulled the necessity for such information to exist, but that would seem a pity. In the author's opinion, straight hand keys and bugs are the only true Morse senders around — the electronic keyers and keyboard Morse generators have dehumanised the basic skill of Morse code, which is the making and spacing of characters, numbers and symbols correctly by hand.

Successful bug operation depends on two factors:

- Operator experience
- Correct maintenance/adjustment.

Seasoned cw operators take pride

in the upkeep and adjustment of both straight and bug keys, this never being seen as a "chore". The most important aspect is correct adjustment for proper dots, because all other adjustments are quite minor and the dot is the key element in the formation of the Morse language.

It must be realised that, because no two operators key the same way, the dot adjustment is very individual and each operator must determine the bug adjustment that gives the right "feel" to his/her arm. It is also worth realising that, just as your handwriting continually changes as a reflection of your attitude at the time, so too does the "feel" of the bug change, and you need to be able to adjust it to suit.

Whether the bug is a "Simplex", "Vibroplex", "Katsumi" or homemade, Fig 1 provides the key to

adjustment points since these will all be common and their function is basically the same.

Firstly, adjust both the left and right trunnion screws so that the vibrator arm (pendulum) lies perfectly straight and butts lightly against the damper wheel. This sets up your initial "hands off" key position.

Secondly, slide the speed weight(s) on the vibrator arm to the end position giving the slowest dot speed. Tighten the weight(s) ensuring they do not contact the damper wheel.

Now you are ready to adjust your bug and please allow for some experimenting as one adjustment always affects another. Take your time.

Step 3 Hold the flat thumb paddle in the constant dot position and adjust the left trunnion screw so that the vibrator dot can move to the left about 0.4 mm (1/64 inch). Use a small scale ruler to check this distance. Tighten the left trunnion screw.

Step 4 Hold the paddle for steady dots and allow the vibrator arm to stop vibrating. Now adjust the dot contact screw (on the dot post) so that the contact just makes firm connection with the vibrator dot. At this point you will have steady cw tone from your monitor. Tighten the contact screw and release the paddle.

Step 5 To check your dot adjustment, hold the paddle to activate a string of dots — you should detect at least 40 dots for each paddle movement. Reposition the dot contact screw (on the dot post) to obtain the 40 or more dots. When the vibrator arm stops oscillating, the vibrator dot should come to rest lightly touching the contact screw.

Step 6 If you have a two-speed weight key and you want to speed up the dot rate, slide the innermost weight toward the paddle end — always keep the outermost weight at the end of the vibrator arm regulating the dot speed with the innermost weight.

Step 7 For dash adjustment, position the dash contact for a lateral movement of 0.4 to 0.8 mm (1/64 to 1/32 inch). As commercial/military operators we used the thickness of a sheet of typing paper or a business card. This is all a matter of personal preference, but the smaller this

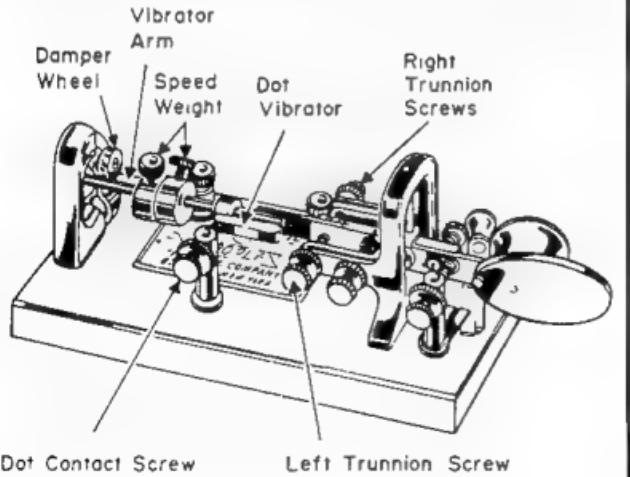


Fig. 1.

spacing, the better and easier is the feel of the key

Step 8 Adjustment of spring tensions is also a matter of personal preference. Operators usually use about 1/3 (20 to 40%) of the spring tension available. The less tension, the easier the feel and it all depends on whether you have a "light" or "heavy arm" action.

Step 9 Some bug users have been seen to use finger touch operation such as electronic keyer users might prefer, but since the bug was developed to prevent "glass arm" in protracted operation, I suggest the following:- set the key side on to you (ie vibrator arm longways to your body front) located directly in front of the shoulder of your non-keying arm and rest the non-keying forearm parallel to the key.

Now rest the keying arm forearm also flat on the desktop so that your body weight is evenly taken by both forearms. The key is now operated by wrist rotation towards (dashes) and away (dots) from your body front.

This posture immobilises whole

arm action and encourages rolling of the wrist — just as in the straight hand key, wrist action produces rhythmical Morse, not "nerve Morse" or "tension Morse". **Relaxed, Rolling and Rhythmical!** Once this basic action is acquired, the bug can be repositioned to suit individual situations.

Maintenance

Periodically inspect the gold or silver contacts' condition. They should be clean and bright. Use clean typing or copying (bond) paper between the contacts and pull it through several times to wipe the contacts. Use switch contact cleaner also but PLEASE no matchbox striker paper, wet'n'dry, Brasso, Silvo or any abrasive cleaner

These should only be used if attempting to resurrect badly pitted and burned contacts. In such cases, it is better to have new contacts or replate old ones, but if you are trying to resurrect them here is the order of operations:

1. Very fine emery paper.
2. Very fine wet'n'dry paper.

3. Crocus cloth or toothpaste on a polishing cloth.

4. The bond paper (as above).

To remove leftover polishing debris, use cotton buds and rubbing alcohol or petrol. Clean the areas thoroughly.

Don't use CRC, or sewing machine oil, etc on your bug as these only attract lint and dust. Use tiny dabs of silicone lubricant at pivot points.

After all this good work, your next best friend will be a bug dust cover. I have seen plastic ones, hand sewn calico, revamped shoe boxes sprayed to match the rig, and freezer bags etc. The cover should remain on your bug when it is not in use.

If anyone out there has a bug key they no longer want, please let me know as I can usually find a good home for it.

Acknowledgments

- 1... "Adjusting and Cleaning of Speed Keys (Bugs)".
by W2PRO CQ Aug 72 P36
- 2... "CW Forever: More Keys, Keys, Keys!"
by K4TWJ CQ May 92 P112
- 3... The Vibroplex Company Inc, 98 Elm St,
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SEAnet '93 Convention

David Rankin 9V1RH/VK3QV*



As with the 1992 Darwin SEAnet Convention, new ground for the venue of the 1993 event was again broken. SEAnet '93 was held in Dhaka, Bangladesh, from 19 to 21 November 1993. This was the 21st Convention which, up until 1992, had been held exclusively in an ASEAN country. The Dhaka convention was the first to be held at a venue on the Indian subcontinent. But maybe not the last. Read on.

The Host Society was the IARU Member society for Bangladesh, BARL (acronym for "Bangladesh Amateur Radio League") and the convention hotel was the Sonargaon. The SEAnet station used the call S21SEA and operated from the hotel most of the time. The QSL manager for S21SEA is I Kobayashi JA0AD. A home brew 2 band 2 element cubical quad, a G5RV and a T2FD on the roof of the 10 storey hotel ensured that the station got out quite well.

BARL followed the conventional program of events with registration on the Friday morning and early afternoon. As SEAnet time (1200 hrs UTC) is at 6 pm Dhaka time the official opening had to be held at 4.30 pm so as to allow the Chief Guest,

The Honourable Tariqul Islam, Minister of Post and Telecommunications to open the Convention and then listen to the net on 14 MHz. The first day concluded with a Welcome Dinner and a Bangladeshi Cultural Show.

The second day was spent on a cruise vessel, the LCT Kajal, sailing up-river and then returning to Pagla and the hotel for the Grand Banquet. Whilst on the river some of the more enthusiastic delegates operated "maritime mobile" using a rig kindly loaned by Rashid S21AR.

The third and final day was the traditional Plenary Session during which the business of SEAnet was discussed by all delegates present. The agenda ranged from short presentations on the current status of amateur radio in his/her country by a spokesman from each country present, to the SEAnet Contest, to the on-air 20 metre net itself.

The final and rather important item of business was the date and venue for the 1994 SEAnet and two invitations were placed before the meeting. The first presentation was by Mrs Mumtaz VU2KAN who proposed Hyderabad in Andhra

Pradesh, India whilst the second was by Rashid 9M2RS, President of MARTS. Rashid mentioned that 1994 was "Visit Malaysia Year" and since the proposed venue was Malacca, a very historical city on the West Coast of 9M2, he believed that MARTS could receive support from Malaysian tourist organisations.

This seemed to sway the delegates present as there was majority support for the MARTS invitation and so the 22nd SEAnet Convention will be held in Malacca between 11 and 13 November 1994. MARTS will be the host society and may be contacted at PO Box 10777, 50724 Kuala Lumpur, West Malaysia. Mark "For the Attention of Sangat Singh, 9M2SS Secretary — Organising Committee".

Note well, though, that India has now shown a positive interest in SEAnet Conventions so who can say what venues may come up for future SEAnets?

The airline schedules into and out of Dhaka were neither convenient nor numerous and, as a consequence, a number of familiar "SEAnet faces" were missing. There were no attendees from Australia, Brunei, Indonesia, New Zealand or Philippines and only two or three each made it from Japan, Malaysia and Thailand.

In the meantime the actual South East Asia net continues to meet daily at 1200 hours UT on 14,320 kHz +/- QRM. Propagation conditions permitting, try and join in, and then meet the faces behind the microphones next November in Malacca.

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Technical Articles in Radio Rivista

Abstracted by George Cranby VK3GI*

Here is a list of technical articles in the last six months of *Radio Rivista*. If any readers would like further information, let me know the details for possible further translation.

In this context I have pointed out previously that the technical standard of the magazine is very high; many of the technical articles are very complex and written for the consumption of specialists in the field. The constructional articles frequently require the availability of special materials and components and access to a variety of machine tools well beyond the reach of most amateurs. It is clear that Italian amateurs — at least those using the magazine — are prepared to spend lots of money on their hobby. Much space is devoted to computerisation and to satellites.

July 1993

1. Noise generator, with reference to *VHF Communications*, Jan 1979
2. 11 element 2 m Yagi, 5.8 m boom, gain 12.5 dB, with complicated bazooka. No feed point details.

August 1993

1. 7 pages of continuing description of home made transceiver. Looks nice but I doubt whether anybody would have the tools, the parts or the will to make it.
2. A portable 2 m antenna similar to the J-pole, but with somewhat negative comment by the editor.

September 1993

1. A low-noise preamplifier for 432 MHz, using a very specific piece of extruded tubing, plus some small items using almost watchmaker's facilities, including a small milling machine. All items silver plated.
2. 5 pages continuing the homebrew transceiver.
3. A frequency counter, 5 pages, with only a three figure readout.
4. A very basic introduction to wave forms — part of a section for beginners.

5. A fun device using fruit — apples, oranges or potatoes — as a power source, called "ecological receiver and transmitter". 12 potatoes in series produce 1.8 V!

October 1993

1. A 20 W FM power amplifier using a device 8GY 36CW, max input 150 mW. Requires a very specific heat sink. The bypass relay is a Siemens type V23154, only 12.5 x 29.2 mm, possible replaceable by something equivalent. This article could be of interest.
2. Another beginner's article dealing with the basics of amplification.
3. A fox-hunt receiver which may be attractive, but without parts list, omitting some ratings and very unclear description.

November 1993

1. A discussion of resonance effects due to support towers, mainly affecting 40 and 80 m. Experiments only — no clear results.

2. A parabolic dish, the construction of which shows the extent to which Italian amateurs will go to achieve a desired result. Weighs 150 kg, uses two three phase motors fed from special speed control frequency converters. Position readout by "optical encoders" with 0.5° resolution.

3. A low-noise preamplifier, 22 to 27 dB amplification from 900 to 1900 MHz. Refers to "A very low noise amplifier for L-band", *VHF Communications* 2/92.

4. A depressing forecast of solar activity showing a drastic decline for 1996.

December 1993

1. Preamplifier for VHF and UHF based on "An unconditionally stable, low noise, GaAsFet preamplifier in VHF Communications 4/90.
2. Cheap MosFet amplifier for 29 MHz satellite downlink, 14 dB gain, only -3dB from 10 to 34 MHz. Very simple.
3. A device, quite complicated, to prevent a problem with CDE-EM rotators when the brake hold is released prior to the antenna having stopped. The device retards the brake release. Not too difficult to construct.

PO Box 22 Woodend VIC 3442

QSP News

AX and VI Prefix Callsigns

The Spectrum Management Agency (SMA) confirmed to the WIA Federal Office in writing during May the procedures regarding the issuing of special callsign prefixes for radio amateurs.

All amateurs should be aware of the following.

The use of AX prefix callsigns is reserved for occasions or events of national or international significance. The allocation of the AX prefix for an event is not on an exclusive basis as the prefix is made available to all amateurs.

Alternatively, the use of VI prefix callsigns is available for

events of state or local significance. Unlike the allocation of AX prefix callsigns, applications for the use of VI prefix callsigns will be accepted from any group or individual.

With both the AX and VI prefixes the allocation is subject to the following:

- approval being granted by the Spectrum Management Agency;
- that the callsigns are not required by the Australian Administration for use by other services; and
- the allocation of these prefixes is restricted to the duration of the occasion or event.

Technical Abstracts

Gil Sones VK3AUI

Comparison of Dual Band Handhelds

A comparison of Dual Band Handhelds was published in *QST* for March 1994 in which five handhelds were compared. The author was Steve Ford WB8IMY and, in addition to the features and usage data, the handhelds were tested technically. The handhelds tested were all purchased normally and were not special review samples. They would be representative of the sort of radio a user would obtain over the counter.

The performance figures obtained are given in Table 1.

The figures do need some interpretation. Sensitivity is not the sole indication of good performance. Intermodulation has a great bearing on the ability to receive signals. The disturbance experienced from

adjacent services is a frequent cause of complaint.

All the handhelds tested have intermodulation performance which could be improved. All the bells and whistles will be of no use if they are issuing forth from the speaker of a radio experiencing disturbance from other services.

"The tests . . . show that a relatively crunch proof front end can be produced for VHF and UHF."

The turnaround time gives some indication of the delay between transmit and receive. This is of importance to Packet users and

determines some of the TNC parameters. The major factor in these times is the settling time of the Phase Locked Loop.

Multimode Multiband Comparison

The March 1994 issue of *OZ* magazine, the Danish Society Journal, carried a comparison test of the multimode multiband radios from ICOM, Kenwood, and Yaesu. The tests were by OZ8NJ Niels Rudberg and OZ1MY Ib Christoffersen. The tests are interesting in that they compare top end radios from the major manufacturers.

Comparison with tests in *QST* and other publications is possible but some of the measurements are to slightly different standards and use different techniques. The tests do, however, give a good comparison of the radios.

Transmitter characteristics were all within the expected and specified parameters. The receiver performance is given in table 2.

The tests do show up some differences between the radios which are due, in part, to the relative time they were designed as well as the expected use for them on the part of the designers. They do show that a relatively crunch proof front end can be produced for VHF and UHF. They also show the desirability of a mast head preamplifier for weak signal work.

Battery Tester as RF Ammeter

A cheap RF ammeter can be made using one of the battery testers packed with Mallory Duracell Alkaline batteries. These are strips which, when connected across a battery cell, provide an indication of the state of the battery by the length of the strip which changes colour.

The tester is not polarity sensitive in spite of the markings. It consists of a resistive strip attached to a liquid crystal strip. When current flows the strip heats up and the liquid crystal strip changes colour. The length of the changed colour strip being proportional to the current flowing. The liquid crystal actually becomes clear when heated, exposing

Table 1 Dual Band Handheld Transceiver Test

		Ainco DJ580T	Icom ICW21A	Kenwood TH78A	Standard C558A	Yaesu FT530
Rx Sens dBm for 12 dB	146 MHz	-123	-124	-123	-123	-123
SINAD	440 MHz	-124	-123	-123	-123	-123
Two Tone 3rd	146 MHz	65	56	58	70	58
Order IMD						
Dynam c Range dB	440 MHz	67	61	69	63	60
Adj Channel Rejection	146 MHz	60	65	61	61	64
20 kHz Offset dB	440 MHz	58	60	58	68	64
Mute Sens dBm at 146 MHz		-130 to -121	-128 to -120	-134 to -123	-132 to -122	-125 to -120
Rx Al OP		231	224	320	202	296
mW into 8Ω 10% Dist						
Tx PWR Watts Std Batt	146 MHz	3	2.8	2.3	2.6	2.6
	440 MHz	2.6	2.0	2.3	2.0	2.1
Tx PWR Watts	146 MHz	6.0	6.1	6.0	5.5	5.7
12 V/13.8V						
Nom Batt	440 MHz	6.2	6.1	5.9	5.3	5
Tx Rx Turnaround	Squ	140	150	230	125	110
T me PTT release	On					
to 90% Full Audio m/S	Squ Off	120	120	110	115	65

Table 2 Multimode Multiband Comparison

		IC970H		TS790		FT736
		Main	Sub	Main	Sub	
Rx Sens μV	2 M	0.064	0.064	0.064	0.064	0.064
SSB	70 cm	0.056	0.056	0.056	0.056	0.064
Rx Sens FM	2 M	0.23	0.23	0.23	0.23	0.32
12 dB						
SINAD μV	70 cm	0.23	0.23	0.23	0.23	0.26
Recip Mix	2 M	58	48	25	25	27
100 dB						
kHz	70 cm	70	68	205	205	180
3rd Order	2 M	-48	-49	-65	-65	-55
IMD						
dBm	70 cm	-42	-42	-61	-61	-62
Intercept	2 M	-3.5	-5	-29	-29	-14
IIP3						
dBm	70 cm	+6.0	+6.0	-22.5	-22.5	-24.5
2 Mx						
Spurious Free						
Dynamic Range						
SFDR 3 dB						

fluorescent ink to provide the colour change.

Maximum current for these strips is in the region of 200 to 400 mA. Their inclusion in a 50 ohm circuit should have minimal effect on SWR which should only rise to 1.1 to 1. To

use at higher RF currents you could use a shunt of carbon or metal film resistors.

If you burn one out then a quick trip to the corner shop will secure a replacement and recharge your torch.

WIA News

Members transferring Divisions

If a member of one Division wishes to transfer to another Division without changing their state of residence, it is now Federal policy that there is consultation between the Divisions, except where applicants reside less than 50 km from a State border or outside Australia.

There has been for many years a "gentleman's agreement" between Divisions that there will be no "poaching" of members from one Division by another Division.

The policy was formalised at the annual Federal Convention in Melbourne over April 30th-May 1st. The formal motion noted that the

Federal Office had written a letter to certain members advising that they may join any Division regardless of their state of residence, and further noted the adverse effect of this on the Divisional structure.

A WIA member belongs to an individual Division. The Federal WIA, on the other hand, has *only the seven Divisions as members*. It's a pretty simple structure.

From now, when a member wishes to transfer membership to another Division without changing their State of residence, it is not "automatically" effected by the Federal Office, but both Divisions will be notified and it is then up to the Divisions what action is appropriate.

This tip appeared in QST Feb 1994 and the author was K4ERO John Stanley.

Helpful EMC

In *Radio Communications* for April 1994, G4JKS Hilary Clayton Smith devotes some space to the EMC problems experienced with Passive Infrared Detectors used as sensors for alarms and for activating security lights. He recounts the following anecdote where poor EMC was put to good use.

"Recently we heard of a police officer in Leicestershire who was called to a house where a suspect had been reported in the back garden. He took advantage of the fact that, with the mobile radio in his patrol car acting as a repeater, he could use his handheld transceiver to cause nearby security lights to switch on. This forced the suspect in the garden to beat a hasty retreat over the back wall where the officer was waiting for him!"

Well, it may be another urban myth but it does make a good story.

A. J & J COMAN ANTENNAS

Dual band Co/linear 2M&70cm	\$ 95
2M co/linear 2 5/8	\$ 93
5 ele 2M	\$ 73
12 ele 2M	\$115
6 M J-pole	\$109
6 M co/lin 6dbd rad 4.NEW	\$149
6 ele 6M	\$188
Duo 10-15M	\$259
3 ele 15M	\$179
3 ele 20M	\$289
M B Vert NO TRAPS 10-80 M	\$249
Tri band beam HB 35 C 5 ele	\$665
30M linear loaded 2 ele	\$360
40M linear loaded 2 ele	\$449
13-30M loggeriodic 12 ele	\$865
70 cm beam 12 ele bal/F	\$102
70 cm corner ref 11 to 15dbd	\$call
23 cm corner ref 13 to 17dbd	\$call
23 cm slot fed 34 ele brass	\$call
80 m top load/cap/hat vert.	\$280
3 ele 40M l/cap hats 60mm boom	\$770

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Truckies Travels

Ian Rosser VK2XB/VK2WAG* entertains us with his stories of ham radio on the road.

"Let me tell you a story 'bout a man named Jed"....so starts a song that we have all heard (I'm sure) at the beginning of the Beverly Hillbillies. I would NOT want you to think that the subject of this dissertation was a hillbilly. He isn't! He is, however, a REAL TOUGH mountain man! The following is, I assure you, true. I know. I was there!

About 4 years ago a certain truckie, who is an amateur radio enthusiast, was on sick leave recovering from a collapsed lung. The decision was made that he and a friend should see the snow....something she had never seen. My friend NEVER wants to see the adjectival snow EVER again! You will doubtless see why shortly.

After having been to Wagga and visited various people, snow chains were hired for the little Datto (of the 200B variety). The Nissan 4WD was left at home for some reason. It was decided to head off to Tumut, Talbingo and places higher, to see the snow.

At Talbingo, the road was blocked by sudden snow falls and, acting on advice from a couple of RTA deviates, it was off up this DIRT road ("She'll be right mate. It's good travelling and there is only a bit of snow on the ground") to Batlow. From there to Tumba Bloody Rumba (as Banjo once called it). Now remember, I have 4 million km up in TRUCKS but not a lot in cars! I have driven in ALL conditions in a truck (and even worse in a 4WD) but I have hardly been ANYWHERE in a conventional car!

Well, we struck snow on this narrow gutted mongrel of a dirt road. It was only a little cover so we stopped and fitted the chains (as per directions....they worked well too). Because of the narrowness of the road at that point it was impossible to turn around. So we forged ahead!

We were going well, too, until we came around a bend and what WAS 10 cm of snow became what seemed

like 2 metres of the stuff! Needless to say we became bogged! I'm sure my friend learnt a whole new vocabulary in the next few minutes as I uttered every curse I could lay my tongue to (I suspect I invented a few new ones too!).

HAM RADIO TO THE RESCUE! I had 2 metres and HF on board so, basically, I screamed "Help" over the 2 metre box. My calls were answered by a few of the locals, too many to mention really, but eventually VK2KMK Peter Doyle indicated that he would rescue us. It would take a while as the Land Rover was getting the welder put back on it and he would have to do a couple of things first.

Now it was LATE afternoon by this stage, and it began to snow again. I had confidence in my soon-to-be rescuer, but I was starting to get a little concerned. My friend was becoming less and less impressed with snow with every new flake that

fell!! In fact the word PANIC seems appropriate here!! Never being one to just give up, my lady friend got out and started to dig the snow out from under the car with a HAIR COMB! This with no gloves on or any protection whatsoever! This may explain the frostbite that she suffered!

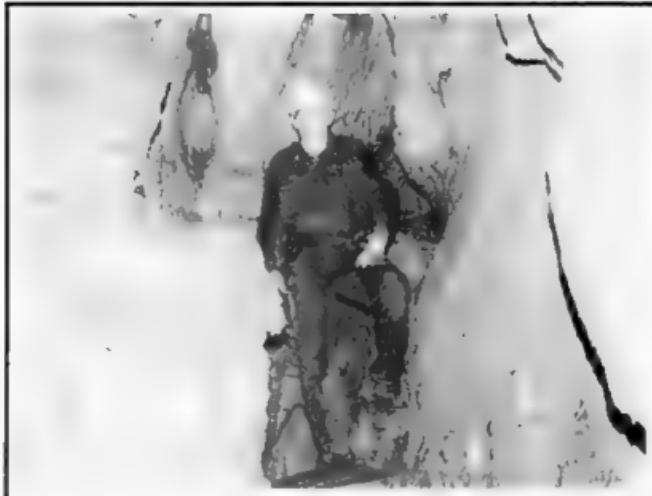
At last Doyle turned up...in a battered looking old Valiant. He got out of the car and walked towards me. Now remember that I had NEVER met him before and at this stage I was ABSOLUTELY utterly FREEZING!

This is what I saw.

A little bloke (I'm 6'2" (188 cm) and 15 stone (95 kg)....so most everyone is little to me) in a pair of "stubbies" and a T shirt! His one concession to the cold was a pair of work boots! To cut a long story short, Doyle produced a couple of shovels and proceeded to dig us out.

THERE IS A MORAL HERE....if you go into strange country or new conditions be PROPERLY prepared!

I've since spoken to the locals and this bloke is "Action Man" personified! He regularly fishes people out of difficulties in the mountains (I am told he knows those parts like you do your lounge room) and on another occasion rescued two young girls (one with a broken leg) BEFORE the Rescue Squad even got organised!



VK2KMK in a cave. "Doyle" is hard to get a photo off! Photo courtesy of Terry VK2BTH.

This doesn't mean the Rescue mob is slack . he's just jolly efficient! Apparently he is a diver, bushwalker and just about everything else you can think of!

It's worth noting here that Doyle thinks hand phones (handheld radio — that's what these mountain men call them) are the greatest thing since sliced bread but that Nicads are USELESS. .they ALWAYS run out of guts when you need them!

My friend and I will be eternally grateful to this man. Ahhhhhh, Barb just informed me that I may sort of identify her as my friend!!

Over the years Amateurs have been good to me, offering advice, shelter, companionship and friendship over the air. In previous columns I have mentioned a few in the New England area. There have been many, MANY more who have assisted me in my tramping around It is impossible to mention them all, BUT there are a few that I SHOULD give some thanks to publicly

VK4KE (Garry) and VK4HZ (Robin) This is a husband and wife team in Brisbane who have told me that if I stay over in Brizzi and DON'T stay at their place I am in BIG, ahhhhh, trouble! Incidentally, I have Robin's old callsign (VK2XB) which will explain the R Suell and Brisbane address in the callbook, my name ISN'T R Suell!!!

VK4AVX...Arthur at Millmerran whose hospitality has been second to none

Almost ALL the amateurs in the Wagga Wagga area...especially Barry (VK2KUZ) and his wife, Anne (she has a Novice call)...Muddy Jack (VK2MUD), and Harley Davidson (VK2AHD) whose surname cannot possibly be that!!

Maybe his surname is right but surely the first name can't be... unless he REALLY is a HOG !!

Laune (VK2ILK) and his wife Vicki (VK2IVK) who put me up at their home near Canberra when I was stranded there a while ago. By stranded, I mean I was a day early to unload!!

Janusz (is that how you spell it Jan?) who writes for ARA (yes the "other magazine!!") VK3OK and his lovely wife (also an amateur) who entertained me when I was held over

in Melbourne. Believe me, Melbourne is the pits if you know nobody!

More recently (like the long weekend just gone....12 to 14 June 1993) the people of Albury/Wodonga...especially Ted VK2ARA who came half way to Holbrook to pick me up, took me home and his family fed/entertained me (and gave me my first taste of 160 metres) THEN returned me to my truck when I dropped a big end in my Cummins powered Kenworth; although I can't bleat about the big end; the motor only did 1.25 MILLION km before it said "sorry, I don't want to go anymore!"

The many other amateurs who stay up late at night periodically just to talk to me and to help me kill a few kilometres. Many of these people would NORMALLY be in bed but time and again they burn the midnight oil just to help keep me going. They tell me they are enjoying the company.

but I am convinced in many cases they are just trying to maintain MY level of alertness. It is appreciated, folks, but really, I am a professional and I know when I'm tired! THANKS TO YOU ALL.

If any of the 100 or so truckies who are Hams wish me to set my packet system up as a special purpose BBS JUST for you folks (ie NO GENERAL BULLETINS....just industry related.. like Fred Bloggs going to Adelaide etc) let me know as my computer runs 24 hours a day anyway. You could send mail here and I could AUTOMATICALLY send it to those interested. Perhaps we could extend it to a TRAVELLERS BBS. Just a thought!!

Until next time...oooooroooooo from the wag VK2WAG/VK2XB.

13 Penworth Close Wyoming NSW 2250
Packet address VK2XB-. VK2EHD NSW AUS OC
TCP/IP address 44.136.16.23

00

QSP News

Special Event to Commemorate 25th Anniversary of First Landing on the Moon

On 23 and 24 July the VK1 Division of the WIA will establish a field station on the old Honeysuckle Creek Tracking Station site in the Brindabella Mountains south west of Canberra.

The tracking station was originally responsible for receiving the historical signals from the Apollo 11 Lunar landing module and retransmitting them around the world. Members of the VK1 Division intend to erect a multi-band facility on the concrete slab where the receiving dish itself stood and will go to air on frequencies of 3.595, 7.225, 14.250, 18.130, 21.185, 28.400, 53.225 and 146.950 (Mt Ginnini repeater) MHz from midday Saturday 23 July to midday Sunday 24 July, local time.

The special callsign V11HSK has been applied for, HSK being the original Honeysuckle Creek identification, and it is hoped that original employees who were present at the station during the

historical event will spend some time at the field station to answer questions on air. A certificate will be issued to all contacts for this once-only event.

For further information, contact Len Jones VK1NLJ, Secretary WIA VK1 Division, on 06 296 2907 AH.

What's New

The introduction of the new column "What's New", a showcase for new amateur equipment, in the May issue of *Amateur Radio*, proved popular with readers.

"What's New" is to be a regular monthly column and should have appeared in the June issue. However, as is often the case when publishing a monthly magazine, last minute hiccups do occur in production.

Despite the enthusiastic work by "What's New" columnist Bob Tait VK3UI in providing the June column, it had to be pulled from publication because of the last minute arrival of a page of paid advertising.

That "June" column is published this month. Make sure you read it.

Production Editor

Experimental Antenna for 160 Metres

Dave Thompson VK1DT* has developed a 160 metres antenna for the suburban back yard

For a few years I have been using various forms of loop antennas on 160 metres on my suburban block. As I had no reference antenna, performance comparisons were at best a guess, but reports were encouraging. Room being at a premium I decided to build a reference antenna into the loop itself. Now, by switching relays and ATUs, I can make direct comparisons. Apart from saving room, problems with antenna intercoupling are avoided. The only restriction is that experiments include a common reference section.

The Design

Fig 1 gives a plane view of the antenna in its current configuration. The reference section consists of an 18 metres-a-side, inverted V running diagonally across the block (15 m x 30 m). It is supported by a 13 m wooden mast in the centre and by trees at 3 m at the ends. The antenna wire and the open wire feeder are made from surplus RG59 computer coax. The inner conductor is not used, the surface area of the braid helps reduce copper losses.

The relays should be of solid construction and water proofed. High voltages are present in some configurations, sufficient to cook the plastic insulation on power relays I tried. Old clunker switchboard relays have proved reliable. I sealed mine in a short length of PVC pipe. The relay control wires need to be RF decoupled. Winding the excess length around a ferrite loopstick works fine. The relays and ATU should preferably be controlled from a single switch. Quick switching helps to detect small performance differences.

Performance

Switches 1 and 2 off gives the reference inverted V. With 18 metres of insulated wire per side it is near resonant on 80 metres. It works well on 160 metres compared to other G5RV arrangements I have used. Heavy

construction appears to compensate for the low feed point resistance on 160 metres.

Switches 1 and 2 on, with 3 and 4 off, gives a 160 m dipole, bent in a "Z" shape. The 66 metres total length is 0.41 of a wave length, a bit short of the 0.43 required for resonance with insulated wire. On air tests show about 3 dB gain over my reference.

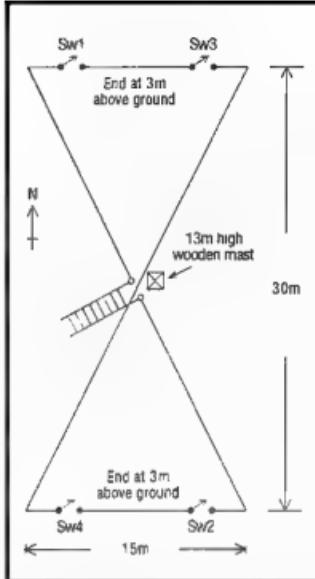
All switches on gives the full loop configuration of 102 metres. This is physically about 0.64 of a wavelength and electrically 0.74 of a wavelength. On air tests show about 6 dB gain over the inverted V reference.

I have tried many loading arrangements with the loop. Some change in the radiation angle or polarisation was evident with local and DX signals affected differently. No gain was achieved compared with being unloaded.

Currently I have loading coils across switches 3 and 4. No difference has been noted in signal strength from any station. However, a significant improvement in readability on marginal signals from VK4 has been observed. More observations over varying band conditions will be made before drawing any conclusions.

Evaluation

I hoped to confirm my experiments with computer models. The program I use is NEC-81 (Ref 1). While not the easiest to use, it provides the best ground model I am aware of, an important factor on this band. The computer models show little difference among the three unloaded antennas. With about 80% of the power going into the ground, copper losses are greatest in the reference antenna, but not significant. The current pattern on the loop appears to be that predicted. A maximum occurs opposite the feed point, at the top of the second "V", with the minimums near the ends of the reference section. The position of the minimums was confirmed.



The discrepancy in results is either due to some limitation of the software or insufficient modelling of the local environment. The near field extent includes power lines, phone lines, roofs, and who knows what below the ground. Perhaps the antenna has been optimised for this QTH. Testing at a second QTH would be useful.

Conclusion

The loop design was inspired by an article "The 80 Metre Pyramid Antenna" by WB8AOF in the July 1980 issue of the American CQ magazine from a design in the February 1961 issue of CQ. This design has a smaller base area with 80 metres of wire.

Being able to switch configurations has been very useful. While the results are not conclusive, they provide incentive for more study and experimentation. This is the best way to learn. All configurations perform well for their size, so if you can fit a G5RV at your QTH you have no excuse. Hope to meet you on top band.

Ref 1 — NEC-81 available as part of the NEEDS package from: R. W Adler, ACES Secretary, Code EC/AB, Naval Postgraduate School MONTEREY, CA 93943 USA

Book Review

NOSintro

TCP/IP over Packet Radio

An introduction to the KA9Q Network Operating System

Written by Ian Wade G3NRW

Published by Dowermain Ltd 1992

Paperback 356 pages 210 mm by 148 mm

Reviewed by Evan Jarman VK3ANI



This book is a driver's manual to the KA9Q network operating system. The intention is to demonstrate and then guide the reader in the use of KA9Q NOS. The program is shareware and sources are listed if any reader is not able to get a copy through bulletin boards (NOSVIEW ZIP or NOSGAS ZIP). The software does not come with the book.

The KA9Q software for transmission control protocol/internet protocol (TCP/IP) has been in use for a few years. Written by Phil Karn KA9Q, it is a program that allows any PC (DOS is the quoted platform) to be used as a communications node. The book is designed for the user who wants to migrate from the dumb terminal, native mode TNC to an internet protocol on packet radio, using the KA9Q NOS programs. The programs utilises the

computing ability of the PC to provide the networking environment. The TNC is reduced to a KISS mode packet assembler/disassembler.

The book describes how the software sets up an internet node in the PC and how it relates to other nodes. The communication medium receives a cursory mention. Things like interface protocol signals are named (CTS, RTS, etc) but not described. It is assumed that the user is already familiar with their use. This is not a book for hardware devotees; the only mention electrical activity gets is disabling the battery to overcome software lockup in a TNC.

The author guides a user in the process of installing and setting up the NOS software. Examples are given of the various control files needed to make the

system operational. The control file examples alone would be worth the value of the book. The program requires these control files to configure the system and having a known base can save a lot of heartache in getting established. Once established it is far easier to customise a system than it is to create the customised system from scratch. Files such as autoexec.nos are not simple but are set and forget type files.

Once installed the author shows how to test the system and demonstrates some of the features of NOS. All of the commands are listed in the appendix and most are described in the body of the book. NOS operates on a format similar to the DOS prompt. The command set, what they do and where to use them constitute the bulk of the book. It is best to have the software operating when reading. Learning computing is very much a hands on process; it is better learned through experience. It is amazing that this software was written by one person; it is so versatile. While not having as many features as commercial packages, it supports the main protocols (AX25, etc) and so would enable the user to be part of a larger network. Being shareware it comes at the right price.

The last step the author describes is what to do after turning the radio on. It goes through some on air tests, then connection to a BBS. By this time the user has an operational system ready for many hours of mail and data transfer.

One point that the author mentions deserves repeating. When setting up this software it is best to use a subdirectory. Outside users are not able to access any files higher on the tree than the base directory of the NOS software. Putting NOS in a subdirectory protects all those pieces of valuable software from prying eyes. Never use the root directory for applications unless essential. The DOS "subst" command is recommended for those who hate the sight of long subdirectory lists on a DOS prompt.

Language throughout the book uses computer and electronic mail jargon. It is well illustrated using the diagrams, symbols and operators common to this field. While the author does recommend that it be read through first, it is not a novel. It relies heavily on the software to complement it and is far more descriptive than the help files included in NOS. For those wanting to implement KA9Q NOS the book is well worth reading.

Review copy received direct from the overseas publishers. Local enquiries can be made through the WIA Divisional Bookshops and DAYCOM Communications Pty Ltd.

Book Review

The ARRL Radio Buyers Sourcebooks Volumes 1 and 2

Published by the ARRL
Reviewed by Ron Fisher VK3OM

However, that still leaves quite a bit of coverage. Volume 1 contains reviews of 140 pieces of equipment and volume 2 covers about 80 pieces. To pad things out volume 2 includes new product information and book reviews.

So, do these books do a good job in covering amateur gear built over the last twenty years or so? The answer is yes and no. QST uses a large team of writers to do their reviews and some are much better at the job than others. Many of the earlier reviews were little more than a run around the front panel and a "we hooked it up and it worked fine" type of report. However, QST reviews have improved out of all sight over the last ten years or so with very complete technical tests now being carried out. One thing that stands out with both volumes is the poor quality of the photographic reproduction. The articles have been scanned straight out of QST magazines making many of the photos look like black blobs. Editing of the articles also leaves something to be desired. References to other articles in QST, but not in the Radio Buyers Sourcebook, have been left in. Another strange thing is that the introductory chapters of volume 1 are repeated in volume 2. While they are of considerable interest, we don't need them twice.

So, back to the original question. Do these books do a good job? The answer is yes. They will answer most of your questions and while they have a few rough spots, they are certainly the best currently available publications reviewing amateur equipment.

The review books were supplied by Daycom Communications Pty Ltd, and are available also from WIA Divisional Bookshops at \$40.00 each.

Have you
advised the WIA
Federal Office
of your new
callsign? Use
the form on the
reverse side of
the Amateur
Radio address
flysheet.

How many times do you scan the Hamads in Amateur Radio and wonder just what all of those type numbers mean? Just how can you make a reasoned judgement on whether you should buy this rig or that rig?

Well, for a start, the reviews in Amateur Radio are a big help but, of course, we don't have the resources to review everything that comes on to the market. I guess no magazine does, but QST, the American Radio Relay League (ARRL)

journal, has a better chance than most. These two volumes include most of the equipment reviewed in QST from around the mid 70s to the end of 1992. Volume one covers up to the end of 1990 and volume two covers 1991 and 1992. As both volumes are similar in size, this means that more recent equipment gets better coverage. The cut off has been determined by the second hand price in the USA. Anything with a value of less than about \$150 has been omitted.

THE 21st CENTURY COMM. RECEIVER IS HERE TODAY

THE FABULOUS

SoftWave

SoftWave is the first fully integrated digital communications receiver for Microsoft Windows. SoftWave combines a high performance receiver, digital signal processor, spectrum analyzer, database and Windows program in one product. It opens the door to wireless communications on the PC.

GENERAL FEATURES:

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AEA DATA CONTROLLERS represent the most exciting value in amateur radio today.



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HB-35C

FOUR BAND BEAMS FOR 7-14-21-28 MHz BANDS

TE-14 rotatable dipole	\$275
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1-elt on 7MHz	
TE-44 4-elt beam on 14-21-28MHz, 1-elt on 7MHz	\$870

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1-elt on 10-18-25MHz
TE-56 3-elt beam on 14-21-28MHz
2-elt on 10-18-25MHz

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TE-27 dual rotatable dipole	\$440
TE-47 3-elt on 14-21-28MHz	
1-elt on 7-10-18-25MHz	
TE-57 3-elt on 14-21-28MHz, 2-elt on 10-18-25MHz 1-elt on 7MHz	\$1025

THE DX'ers DELIGHT

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AWARDS

John Kelleher VK3DP — Federal Awards Manager*

Recently I wrote to IARU Headquarters for information on the IARU Regions 1, 2 and 3 Awards. Dave Sumner K1ZZ relayed my request to the Regional Secretaries involved. The answers came in the affirmative for Regions 1 and 3, but at this time Region 2 was not sponsoring any Awards. At the same time, the RSGB, sponsors of the Region 1 Award, were in the process of appointing a new HF Awards Manager. He is Fred Hanscombe G4BWP, Heath Farm Road, Red Lodge, Bury St Edmunds, Suffolk IP28 8LG, England.

My underlying reason for initially seeking information on these Awards was to ascertain whether recent changes to geographical boundaries and some deletions from the DXCC listings had been incorporated into the qualifying countries lists. The Region 1 award will be updated again in September, but member societies will count from the date of their joining the IARU. Here now is relevant information on the IARU Region 1 Award.

This Award, available in 3 classes, may be claimed by any licensed radio amateur eligible under the general rules (which I will publish later, under the heading of RSGB awards), and who can produce evidence of having contacted amateur radio stations in the required number of countries, whose national societies are members of the Region 1 Division of the International Amateur Radio Union.

The 3 classes are for contacts as follows:

Class 1 All member countries on the current list

Class 2 45 member countries.

Class 3 30 member countries.

Members of IARU Region 1 are

Albania	Germany	Malta
Algeria	Ghana	Mauritius
Andorra	Gibraltar	Monaco
Austria	Greece	Mongolia
Bahrain	Hungary	Morocco
Belgium	Iceland	Namibia
Botswana	Ireland	Netherlands
Bulgaria	Israel	Nigeria
Croatia	Italy	Norway
Cyprus	Ivory Coast	Orman
Denmark	Jordan	Poland
Djibouti	Kenya	Portugal
Egypt	Kuwait	Romania
Estonia	Lebanon	Russia
Faeroes	Lesotho	San Marino
Finland	Liberia	Senegal
France	Liechtenstein	Sierra Leone
Gabon	Lithuania	Slovenia
Gambia	Luxembourg	South Africa

Spain Syria Yugoslavia
Swaziland Turkey Zambia
Sweden United Kingdom Zimbabwe
Switzerland

A special version of this award is available in the same three classes for confirmed contacts on the 28 MHz band since 1 July, 1983.

To qualify, a statement from the applicant's National Society that the necessary cards have been checked will be accepted except that the (RSGB) HF Awards Manager reserves the right to see some, or all, of the cards.

Each claim must be accompanied by a fee of US\$6.00 or 9 IRCs

The Secretary of IARU Region 3, Masayoshi Fujioka, has supplied the following information on the Region 3 Award.

1. The award is available to licensed Amateurs and SWLs.
2. Contacts made after 5 April 1982 are eligible, but certificates will date from 1 January 1983 as part of WORLD COMMUNICATIONS YEAR
3. QSL cards are not required. Send certified list of eligible contacts from your Log Book.
4. The fee is \$1.00 surface (\$2.00 Airmail) for return postage only.
5. The basic Award requires 7 countries; Silver Star endorsement requires 15 countries, while the Gold Star endorsement requires 20 countries.
6. Awards may be endorsed for any mode or band.
7. Eligible countries are those in Region 3 whose amateur radio societies are members of IARU Region 3. These are Australia, Bangladesh, Brunei, China

(PRC), Chinese Taipei, Fiji, French Polynesia (FO8 only) Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Pakistan, Papua New Guinea, Philippines, Singapore, Solomon Islands, Sri Lanka, Thailand, Tonga, and Vanuatu PLUS: One country credit from US Territories in the Pacific from Guam, Northern Marianas, American Samoa, Wake Island, Baker-Howland Group, as represented by the ARRL

ALSO: One country credit from Pitcairn Island (VR6) and Chagos Archipelago, as represented by the RSGB.

The current total of available "countries" is 25.

8. Applications go to NZART Awards Manager, Peter Kenny ZL2QK, 5 Townley Street, Gisborne 3801, New Zealand

From VK3CHN comes a correction to the postcode for the German DLD Award. The new Zip is 34216. The unification of the two Germanies forced a correction to the four figure postcodes, and a cancellation of the DARC postcodes Award, until further advised.

Stations affected by the deletion of Walvis Bay and Penguin Islands are hereby listed:

VK1ZL
VK2PU, CKW, FG1
VK3DD, JA, JI, KS, OT, QI, UY, VQ, XB,
YJ, YL, AKK, CSR, DYL
VK4DP, KS, LC, OD, OH, RF, UA, AAR
VK5EE MS, QW, UO, WO, XN
VK6HD, NE, PY, RO, VS
VK7BC
PSTAB, SM8PRX, KA1TFU, ON6DP, and
ZS6IR

The next summary of WIA DX listings will be published in the August edition of the Awards column

*PO Box 2175 Caulfield Junction 3161

re-arrange your schedule to include the QLDMEET. More information will be published in this column and in the Newsletter as it comes to hand

Annual General Meeting on 23 May

As always we had more members on air for our AGM than we normally have for our Nets, and that is a very good sign of the interest we all take in our association.

Thanks were extended to the outgoing committee, especially to Poppy VK6YF as she quits the position of Sponsorship

ALARA

Christine Taylor VK5CTY

Advance Notice

The District Radio Ladies (DYLs) are organising a QLDMEET to be held in Bundaberg on 2 to 4 September 1994. All YLs and their families are welcome. Input about what YLs would like to see and do there will also be most welcomed by the organisers.

Contacts for this event are Robyn VK4RL, tel 079 281 700; Mary VK4PZ, tel 079 342 910; and Julie VK4JJB, tel 071 534 480, all QTHR.

If you are likely to be in the area of Bundaberg around September, why not

Secretary, and a welcome was extended to the incoming committee and especially to Bev VK4NBB who joins the committee for the first time. Office bearers are President, Christine Taylor VK5CTY; Secretary, Bron Brown VK3DVF; Treasurer, Margaret Schwerin VK4AOE, and Editor, Dorothy Bishop VK2DDB.

We do still have a vacancy for a Publicity Officer. If you would like to do something for ALARA, this may be the way to do it. Please contact your State Rep or a member of the committee. A list of the new committee, with phone numbers and addresses, will be published in the next Newsletter. Keep this inside your phone book for future reference.

At the Hamfests

Dorothy VK2DDB represented ALARA at the Gosford hamfest in February. There she met Mary VK4BEM, Pixie VK2KPC, Marjorie VK2AMJ, and Aimee FK8FA. Pauline VK2GTB was working on the WICEN table. A new member joined ALARA that day, Margaret VK2MAS.

Margaret VK4AOE's last outing as State Rep was to the Barfest (Brisbane) early in May where she met up with Pat VK4PT, Bev VK4NBB, Kathy VK4XYL, Val VK4VR, Ann VK4ANN, Joy VK4AT, and Cathy VK4FG.

On the same day the DRL (District Radio Ladies) accompanied the CQ Branch to a primary school at Yeppoon

where they set up an attractive display. This group of ladies are mainly involved in social activities but they also run a JOTA station for the Girl Guides and help the Guides gain their radio badges. This is the group who are organising the QLDMEET later this year. A busy group enjoying radio their way.

ALARA was represented at the Midland Hamfest held at Renmark on 21 May. This is the first Hamfest to be held at Renmark though the Riverland Radio Club members have assisted in the running of the previous Hamfests held in Mildura. The Midland event will be held alternately in Mildura and Renmark from now on. Remember it next year if you missed this one.

ALARA was represented by Marilyn VK3DMS, Meg VK5AOV, and Christine VK5CTY and gained three new members on the day with two or three other ladies interested enough to take our pamphlets. Marilyn, Meg and Christine with two of the new members, Jean and Tina are together in the photograph.

Margaret VK4AOE showed the flag for ALARA at the Barfest in Brisbane and Dorothy VK2DDB represented us at the Gosford field days again. I hope you took the opportunity to meet them there if you also attended.

Other News

Recently Marlene VK3WQ had a most enjoyable visit with Jill ZL2BHJ whom she sponsors into ALARA. Jill was in

Melbourne with her OM Dave when they attended the WIA Federal Convention. It is not often possible to have an eyeball with your sponsored girls, but we do keep in contact on the air or by mail as often as possible.

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI

AMSAT Australia net:

Control station: VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz. (Usually during summer).

Secondary 3.685 MHz. (Usually during winter).

Frequencies +/- 5 kHz for QRM. **AMSAT Australia newsletter and software service**

The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

25 Years in Space — AMSAT Celebrates 25th Anniversary

The Radio Amateur Satellite Corporation (AMSAT) was formed on 3 March 1969. The amateur radio satellite service can trace its roots back at least 5 years earlier to the work done by the PROJECT OSCAR team. An excellent account of the early days is contained in the Mar/Apr 1994 edition of the **AMSAT-NA Journal**. A couple of items will be of interest to readers. The first satellite launch organised by AMSAT was OSCAR Australis-5. AO-5 was designed and built at the University of Melbourne. Previous launches had been handled by the PROJECT OSCAR team through contacts in the military. AO-5 was the first OSCAR to be launched by NASA. AO-5 was already built and awaiting a launch. It was selected as a ready made device to quickly get the fledgling AMSAT off the ground (sorry) and get good publicity for the new organisation and its plans for the future. It did both those things.



At Renmark, L to R, Jean Kopp, Meg VK5AOV, Marilyn VK3DMS, Christine VK5CTY, and Tina Klogg.

Six monthly update of current amateur radio satellite frequencies and modes. The previous list was in January Amateur Radio.

Satellite	UPLINK (MHz)	DOWNLINK (MHz)
OSCAR 10 (AO-10)		
General Beacon (Carrier only)	145.810	
Eng neering Beacon (regular and garbled)	145.987	
Mode B (SSB, CW-Inverting)	435.030-435.180	145.825-145.975
Note: AO-10 is out of control but still provides good communications via mode "B" when the batteries are charged by the solar cells.		
OSCAR 11 UoSAT-2 (UO-11)		
Beacon (1200 AFSK,FM)	145.826 (normal)	
Beacon (1200 AFSK,FM)	435.025	
Beacon (1200 AFSK,FM)	2401.500 (on at present)	
Note: UO-11's 2401.5 MHz beacon has been turned on since Jan 1994		
Radio Sputnik 10 (RS-10)		
Mode A (SSB,CW-Inverting)	145.86-145.90	29.360-29.400
Beacon/Robot (CW)	29.357	
Beacon/Robot (CW)	29.403	
Robot Mode A (CW)	145.82	29.357 or 29.403
Mode K (SSB,CW-Inverting)	21.160-21.200	29.360-29.400
Beacon/Robot (CW)	29.357	
Beacon/Robot (CW)	29.403	
Robot Mode K (CW)	21.120	29.357 or 29.403
Mode T (SSB,CW-Inverting)	21.160-21.200	145.86-145.90
Beacon/Robot (CW)	145.857	
Beacon/Robot (CW)	145.803	
Robot Mode T (CW)	21.120	145.857 or 145.903
Radio Sputnik 11 (RS-11)		
Mode A (SSB,CW-Inverting)	145.91-145.95	29.410-29.450
Beacon/Robot (CW)	29.407	
Beacon/Robot (CW)	29.453	
Robot Mode A (CW)	145.83	29.407 or 29.453
Mode K (SSB,CW-Inverting)	21.210-21.250	29.410-29.450
Beacon/Robot (CW)	29.407	
Beacon/Robot (CW)	29.453	
Robot Mode K (CW)	21.130	29.407 or 29.453
Mode T (SSB,CW-Inverting)	21.210-21.250	145.91-145.95
Beacon/Robot (CW)	145.907	
Beacon/Robot (CW)	145.953	
Robot Mode T (CW)	21.130	145.907 or 145.953
Radio Sputnik 12 (RS-12)		
Mode A (SSB,CW-Inverting)	145.91-145.95	29.410-29.450
Beacon/Robot (CW)	29.408	
Beacon/Robot (CW)	29.454	
Robot Mode A (CW)	145.831/1.840	29.408 or 29.454
Mode K (SSB,CW-Inverting)	21.210-21.250	29.410-29.450
Beacon/Robot (CW)	29.408	
Beacon/Robot (CW)	29.454	
Robot Mode K (CW)	21.129	29.408 or 29.454
Mode T (SSB,CW-Inverting)	21.210-21.250	145.910-145.950
Beacon/Robot (CW)	145.912	
Beacon/Robot (CW)	145.959	
Robot Mode T (CW)	21.129	145.912 or 145.959
Radio Sputnik 13 (RS-13)		
Mode A (SSB,CW-Inverting)	145.96-146.00	29.460-29.500
Beacon/Robot (CW)	29.458	
Beacon/Robot (CW)	29.504	
Robot Mode A (CW)	145.84	29.458 or 29.504
Mode K (SSB,CW-Inverting)	21.260-21.300	29.460-29.500
Beacon/Robot (CW)	29.458	
Beacon/Robot (CW)	29.504	
Robot Mode K (CW)	21.138	29.458 or 29.504
Mode T (SSB,CW-Inverting)	21.260-21.300	145.960-146.000
Beacon/Robot (CW)	145.862	

Satellite	UPLINK (MHz)	DOWNLINK (MHz)
Beacon/Robot (CW)	145.908	
Robot Mode T (CW)	21.138	145.862 or 145.908
AMSAT-OSCAR-13 (AO-13)		
General Beacon (400 BPSK,CW,50 Baud RTTY)	145.812	
Engineering Beacon (PSK,CW,RTTY)	145.985	
Mode B (SSB,CW-Inverting)	435.420-435.570	145.825-145.975
Mode S (SSB,CW,FM)	435.601-435.639	2400.711-2400.747
Beacon (PSK,RTTY) seldom turned on	2400.325	
Beacon (PSK,RTTY) ON 1st 3 mA current mode S	2400.664	
Note: Modes "L" and "J" are no longer operational on AO-13.		
UoSAT-OSCAR-14 (UO-14) (Taken out of amateur service)		
Note: This (Surrey) satellite is now given over to the "SafeLife" organ sat and is being used to deliver humanitarian medical aid to developing countries. DO NOT attempt to communicate with or via this satellite. It is no longer available to the amateur service and the amateur transponders have been turned off.		
AMSAT-OSCAR-16 (AO-16) (Pacsat)		
Mode J (1200 BPSK)	145.90/92/94/96	437.025 or 437.050
BBS,FM-SSB		
Mode S (1200 BPSK)		
BBS,FM-SSB		
AMSAT-OSCAR-17 (DO-17) (Dove)		
Beacon 1 (1200 bps AFSK,Digital Voice,FM)	145.825/16 (normal)	
Beacon 2 (1200 bps AFSK,Digital Voice,FM)	145.824/38	
Beacon 3 (1200 BPSK,Digital Voice,SSB)	2401.2205 (on at present)	
AMSAT-OSCAR-18 (WO-18) (Webersat)		
Mode J (1200 BPSK,RC,SSB)	144.30-144.50	437.075 or 437.10
ATV (TV,AM)	1265.000	
AMSAT-OSCAR-19 (LO-19) (Lusat)		
(1200 AFSK,FM-SSB)	145.84/86/88/90	437.1535 or 437.1258
FUJI-OSCAR-20 (Ja-18) (FO-20)		
Beacon JA (CW,Analog)	435.795	
Mode JA (SSB,CW)	145.90-145.00	435.80-435.90
Beacon JD (CW)	435.910	
Mode JD (1200 BPSK,FM-SSB)	145.85/87/89/91	435.910
OSCAR-21 (AO-21), Radio Sputnik 14 (RS-14)		
Mode B (SSB,CW-Inverting)	435.022-435.102	145.852-145.932
Beacon (CW)		
Beacon (BPSK,FM)		
Beacon (BPSK,SSB)		
Rudak 2 (A/BPSK,FM)	435.016/155/193	145.983 or 145.967
Rudak 2 (Various Modes)	435.041	145.983 or 145.967
Mode B (SSB,CW-Inverting)	435.043-435.123	145.866-145.946
Beacon (CW)		
Beacon (BPSK,FM)		
Beacon (BPSK,FM)		
Note: AO-21's current 10 minute cycle includes FM repeater, WEFAX image and 1200 baud AFSK telemetry.		
UoSAT-OSCAR-22 (UO-22)		
Mode JD (9600 Baud FSK,FM)	145.90/975	435.120
KITSAT-OSCAR-23 (KO-23)		
Mode JD (9600 Baud FSK,FM)	145.85/90	435.175
KITSAT-OSCAR-25 (KO-25)		
Mode JD (9600 Baud FSK,FM)	145.980	436.500
ITAMSAT-OSCAR-26 (IO-26)		
145.875	435.867	
145.900	435.822	
145.925		
145.950		
AMRAD-OSCAR-27 (AO-27)		
145.850	436.800	
POSAT-OSCAR-28 (PO-28)		
145.925	435.250	
145.975	435.275	
The ARSENE satellite has not yet responded to rescue attempts.		

FBB BBS Satellite Tracking Facility

Readers may not be aware of this facility which is contained in the now widespread F6FBB packet radio bulletin boards. It is a useful feature for casual satellite users who may not want to maintain and keep updating their own satellite tracking program. Space shuttle flights and MIR are two examples of "satellite" operations that appeal to many who are not actively engaged in day to day amateur satellite work. Both of these support packet radio and if you are in range of an FBB BBS you can have access to the latest tracking data for these and many other amateur and commercial satellites via the file server on the BBS.

To attain maximum accuracy you will need to have entered your grid square at the BBS when you first signed on as a user. A lot of people are uncertain how to answer but don't panic, the F6FBB board has an inbuilt facility to calculate your grid square. Enter file server mode with the command F, then enter Q from the file server prompt and answer the questions re latitude and longitude. Then exit file server mode with F and enter your grid square, eg QF22KE, using the command NQ QF22KE. After you do this the BBS won't ask you for your QTH each time you connect. If all the above is too troublesome you can still use the tracking feature but in the absence of your QTH the program will default to the BBS location. Go back to the file server with an F command and look at the sub-menu. Enter T for satellite mode. Then at the next prompt enter T for tracking. You will be asked for a satellite by number. The command L will give you a list. When you have selected a satellite you will be asked for a date and time. Most BBSs default to the current time and date if you hit enter a couple of times. Have your disk capture turned on or be prepared to write fast, hi.

Appeal for Feedback from RS Control Station

The following message came through the packet BBS system recently

From: RK3KPK@RK3KPM.RU.S.EU
To: AMSAT@WW

Hello dear friends,

Here is RK3KPK My name is Andy

I am op of RS3A Command Station of RS satellites.

I would like to know any news about your work via RS satellites. Pse send your comments to RK3KPK@RK3KPM.RU.S.EU
thank you very much! 73,

Andy and RS3A command 27/04/94

Andy would not have gone to the trouble of circulating the message unless he was anxious to obtain feedback. I'm sure there are many VK operators who

use RS-10/11/12/13 occasionally or regularly. Please take the time to drop Andy a short reply.

Next Month

New software for the digital satellites. In the May 1994 issue of the *Amsat-VK Newsletter* Graham VK5AGR reviewed a new software package. Called WiSP and written by Chris ZL2TPO, it has been very

well received by beta testers around the world. I hope to have a good look at it over the next month and give a short review in this column.

Also the phase 3D T/R switching matrix held over due to the frequency table taking up a lot of space in the month's column.

359 Williamstown Rd, Yarraville VIC 3013
Packets: VK3J/T@VK3BBS

WIP

Club Corner

Moorabbin and District Radio Club Inc

More than 460 people paid at the door to visit the club's annual Hamfest on Saturday, 14 May. Trade exhibitors reported a very satisfactory level of enquiries and sales on the day and in subsequent days. A couple of tons of preloved gear was thoroughly turned over and a lot of visitors went home with something from this amazing mass.

The standard of entries for the home brew competition was very high in the opinion of the judges Ron Cook VK3AFW and Drew Diamond VK3XU, who thoroughly examined each entry. The very happy winner of the main prize of \$100 was John Cengia VK3VHD from Korumburra with his low power station

made up of an 80 metre CW/SSB transmitter, a 25 watt PA and an antenna tuner which included an SWR and power meter. The Club committee is very grateful to all who came along and made the event such a success.

The annual general meeting and election of office bearers will be held on Friday, 15 July at 8 pm. Nomination forms are now available from club secretary Keith Turner VK3CWT.

Among components available from the club are very high quality power transformers rated at 30 amps and 20 amps at attractive prices. Three club members provide an approved examination service.

Allan Doble VK3AMD



Drew Diamond VK3XU and Ron Cook VK3AFW assessing one of the entrants, a power supply built into a discarded external floppy drive case, in the Moorabbin and District Radio Club home brew competition.

new 194

FT-11R Micro Deluxe 2m Handheld



2 year warranty



One of the world's smallest 2m FM handhelds with a full-size keypad, the Yaesu FT-11R has been reduced in size, but not in features. Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W H D) including the FNB-31 NiCad pack, and weighs only 280 grams

The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A new high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DMTF based selective calling and paging extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided.

Other new features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver.

The FT-11R comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna.

Cat D-3640

\$699

Shown approximately full size

Now
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Mobile Or Base, See Us First!

Yaesu FT-840 HF Transceiver

Blending the high-performance digital frequency synthesis techniques of the FT-890 with the operating convenience of the FT-747GX which it replaces, the all new FT-840 HF mobile transceiver sets the new standard for high performance in affordable transceivers.

Covering all HF amateur bands from 160m to 10m with 100W P.E. P output, and with continuous receiver coverage from 100kHz to 30MHz, the FT-840 provides SSB/CW/AM operation (FM optional), 100 memory channels, a large backlit LCD screen, two independent VFOs per band, an effective noise blanker and an uncluttered front panel, all in a compact case size of just 238 x 93 x 243mm (WHD). Unlike some competing models, small size doesn't mean small facilities. The FT-840 provides easily accessible features such as Variable mic. gain and RF power controls, SSB Speech processor for greater audio punch, and IF Shift plus CW Reverse to fight interference. Dual Direct Digital Synthesizers ensure clean transmitter output and fast Tx/Rx switching while the own noise receiver front end uses an active double balanced mixer and selectable attenuator for improved strong signal handling. The FT-840 weighs just 4.5kg and uses a thermally-switched cooling fan, surface-mount components and a metal case for cool, reliable operation.

An extensive range of accessory lines are available, including the FC-10 external automatic antenna tuner, so you can customise the FT-840 to suit your operating requirements.

Call D 3275



\$1895

NEW FOR '94

2 Year Warranty



\$699

NEW FOR '94

2 Year Warranty

FT-5200 2m/70cm Mobile Transceiver

The FT-5200 uses the latest innovations in compact cross band full duplex and detachable front panel design for brilliant mobile performance. It has 32 tunable memories, a built in antenna duplexer, dual full-frequency LCD screen (with signal strength/power output bargraphs for each band), 8 level automatic display/button lighting dimmer and dual external speaker jacks (one for each band). A thermally activated fan allows up to 50 watts output on the 2 meter band and 35 on the 70cm band. Plus scanning features include programmable scan limits, selectable scan resume modes, memory skip, priority monitoring and one touch recall CALL channels. In addition, 6 user selectable channel steps are provided and a FRC-4 DTMF paging cellcall option lets you program a three-digit ID code so you can be paged by other transceivers, or page up to 5 other stations yourself. An optional YSK-1 remote panel lets you relocate the main rig (under the front seat, for example) and mount the control panel on the dash. The FT-5200 comes with hand-mic, mobile mounting bracket and DC power lead.

Call D 3310



FT-2200 2m Mobile Transceiver

The new FT-2200 is a compact, fully featured 2m FM transceiver providing selectable power output of 5, 25 and 50 watts, and includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user selectable channel steps from 5kHz to 50MHz, and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto Page/Forwarding features, and 10 DTMF auto dial memories. The LCD screen provides a highly legible bargraph Signal/PD meter plus indicators for the various paging and repeater modes. An optional internal DVS 3 digital recording/playback board can also be controlled from the front panel giving even greater messaging flexibility. Supplied with an MH-2608 hand microphone, mobile mounting bracket and DC power lead.

Call D 3635



\$1499

2 Year Warranty



Australian Naval Amateur Radio Society

Last December members of the Australian Naval Amateur Radio Society took part in the annual International Naval Contest as a flag-waving exercise in order to put Australia on the map. It was an unqualified success. On a per-capita basis the ANARS has proved itself to be the second most active naval amateur radio society in the world following the German MF-Runde and well ahead of the Roumanian MARC, the Dutch MARAC, the Italian INORC and the British RNARS, who finished in that order. To all concerned our thanks for making the world sit up and take notice of Australia. Despite the rather poor conditions ANARS members came 1st and 2nd world-wide in the SSB section, 5th world-wide in the mixed CW/SSB section and were highly placed in the ferociously contested CW section.

As a result the International Naval community has requested that Australia's ANARS host the International Naval Contest in 1995 and again in our centenary year of 2001. This is a task that the ANARS will gladly accept on behalf of our country.

During March the Society operated the special event station V14VHF to mark the de-commissioning of the RANR Depot in Brisbane, HMAS Moreton. Over 700 contacts were made into 55 DXCC countries, which makes this by far the most successful special event ever organised by a naval amateur radio society in Australia.

The ANARS has also been going out to meet our fellow amateurs. Following successful stands at the Gold Coast Hamfest and the Gosford/Wyong Field Day the ANARS was also at the BARCfest

and the Moorabbin Hamfest. We shall be at the next Riverina Field Day, Gympie's Gold Fest and the Ballarat Convention.

Membership of the ANARS continues to grow. We are past the 150 mark and in nautical terms it is "full ahead" towards 200. Any amateur or shortwave listener who has a professional naval or maritime background (ie a little salt water in the blood stream) is invited to join Australia's very own naval amateur radio society. Full details can be obtained from the Hon Secretary, Terry Clark VK2ALG, 467 McKenzie Street, Lavington NSW 2641 or by telephone on (060) 253 292 or by checking into the Australian Navy Net every Monday at 0930 UTC on 3.532 kHz CW, or every Wednesday at 0930 UTC on 3.620 kHz SSB or on the DAILY Australian Navy Net on 7.075 kHz SSB at 0330 UTC.

Twin Cities Radio and Electronics Club

The Twin Cities Radio and Electronics Club will be hosting the 1994 Riverina Field Day on 13 August at the Murray High School in Albury. This is the third annual field day which is hosted alternately by the Wagga Wagga Radio Club and ourselves.

The field day will be held in the main hall at the school and there will be light refreshments available from the school canteen. The Albury area has some of the most breathtaking scenery in Australia so that, apart from the attractions of the field day, there are opportunities for sightseeing as well as numerous tourist attractions.

ar

Repeater Link

Will McGhee VK6UU*

FM 828-7

This is number seven in the series of circuits for the FM 828 transceiver. This circuit shows the transmit VCO and its buffer and amplifier. All of this circuit operates at the final 2 metre output frequency if you are transmitting on 146.5 MHz then the VCO is oscillating at 146.5 MHz. This signal is amplified in the PA module up to a power level of 25 Watts.

Note the all important VCO control line that feeds back a DC voltage that keeps the VCO on frequency. This DC voltage is produced by the earlier stages and is referenced by the transmit crystal oscillator, a separate oscillator for each channel.

The FM 828 transmitter is part the way there to being a synthesised radio. If a programmable divider was placed in the VCO divider chain then, with one crystal oscillator, different transmit frequencies could be selected.

There are many requests for a Synthesised VCO design for the FM 828, and the first to produce such a design will have a big demand. If you are the first to produce such a circuit I could help with the drafting and publishing of the circuit.

All these circuits were produced on the CAD program Draft Choice and are available via Packet radio in 7 Plus format.

*21 Waterloo Crescent Lismore 2480
VK6UU & VK6BBS

BR

OUTBACKER™

HF MOBILE ANTENNA
1.8 To 30 Mhz

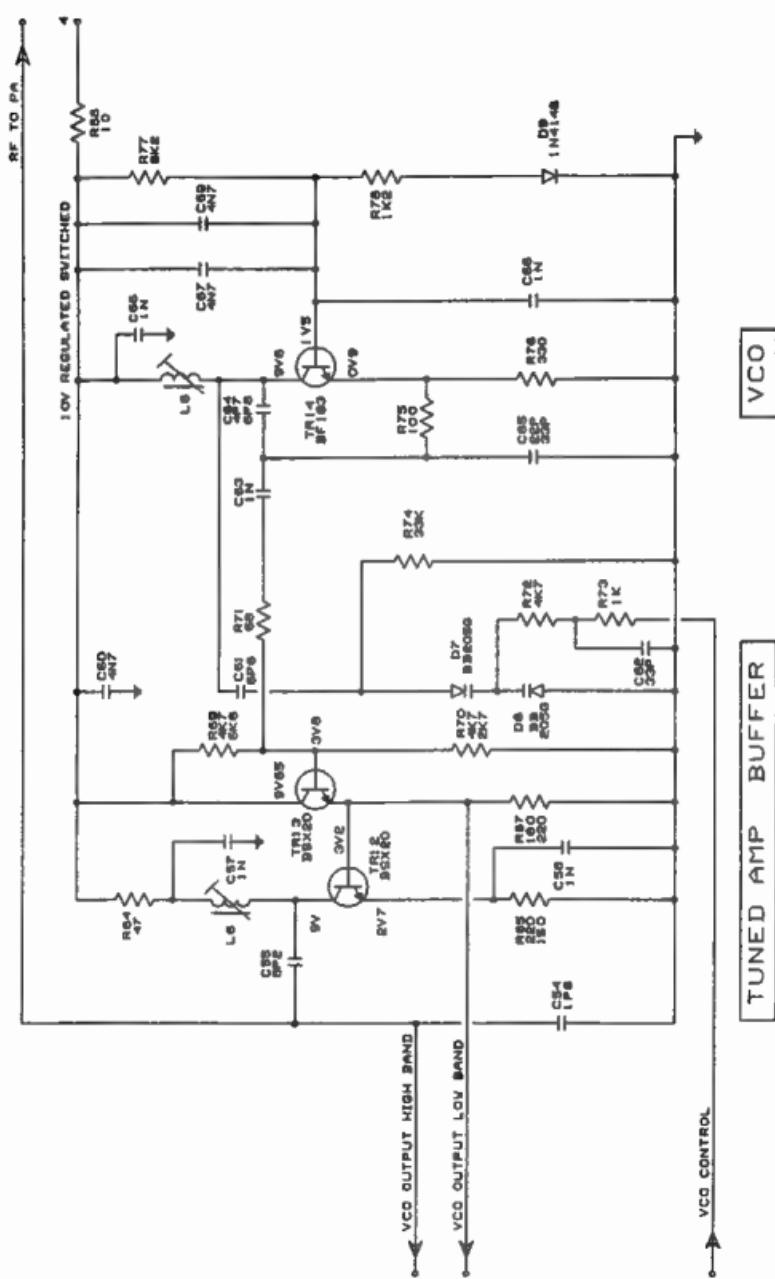
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NOTE - WHERE TWO VALUES SHOWN FIRST IS FOR A BAND AND SECOND IS BAND

FM 828 EXCITER
VCO & BUFFER & TUNED AMP
DESIGNED BY PHILIPS
DRAWN BY WILL

Contests

Peter Nesbit VK3APN* — Federal Contest Coordinator*

Contest Calendar July-Sept 94

Jul 1	Canada Day CW/Phone	(Jun 93)
Jul 2	Australasian 80 m CW Sprint	(Jun 94)
Jul 2	NZART 80 m Memorial CW/Phone	(Jun 94)
Jul 2/3	Venezuela DX Phone	(Jun 94)
Jul 9	Australasian Phone Sprint	(Jun 94)
Jul 9/10	IARU HF Championship	(Jun 94)
Jul 16	Colombian Independence Day	
Jul 16	Jack Files Memorial Phone	(Jun 94)
Jul 16/17	SEANET DX Contest CW	
Jul 17	VKS Annual 80 m Contest Phone	(Jun 94)
Jul 23	Jack Files Memorial CW	(Jun 94)
Jul 24	VKS Annual 80 m Contest CW	(Jun 94)
Jul 23/24	Venezuela DX CW	(Jun 94)
Aug 23/24	Goodwill Games/CIS (Phone/CW)	
Aug 6/7	YD DX Contest	
Aug 13/14	Remembrance Day Contest	
Aug 13/14	Worked All Europe CW	
Aug 20/21	SEANET DX Contest Phone	
Aug 20/21	15th Keyman's Club of Japan CW	
Sep 3/4	All Asia DX Contest Phone	(May 94)
Sep 3/4	Bulgarian DX Contest	
Sep 10/11	Worked All Europe Phone	
Sep 17/18	SAC DX CW	
Sep 24/25	SAC DX Phone	
Sep 24/25	CO WW RTTY DX Contest	

What with work, part-time study, and the demands of various contest matters, there are never enough hours in the day. My own contesting has been pared to the minimum, and ragchewing has become a distant memory! However, I enjoy this task and your many kind letters and comments have been appreciated. Speaking of letters, my apologies to those who have written but have yet to receive a reply. Rest assured all letters are answered.

Australia's favourite contest, the RD, is coming up next month, and I urge you to take part and make it the best one ever. This year signal reports have been reintroduced, to assist (and attract) newcomers, amongst others, who may need the reports for QSLs and/or checks on how well they are being received. Even the largest contests where top entrants routinely make three or four thousand QSOs in a weekend (eg CQ-WPX), require signal reports, so there is no reason why this should not also apply to the RD. Another change is that the separate category for digital modes, trialled last year, has been absorbed back into the CW category. Finally, this year marks the handing over of the contest from Neil Penfold VK6NE to Alex Petkovic VK6APK. On behalf of members I wish to thank Neil for his splendid efforts as RD Contest Manager over many years, and to

congratulate him in his new role of Federal President. Also, a warm welcome to Alex as the new RD manager.

Thanks to VK4BAY, VK5AJS, VK5FOX, VK5UE, VK6NE, ZL1AAS, ZL3ADF, JA1DD, CQ, QST, and Radio Communications. Until next month, good contesting!

73s
Peter VK3APN

Addendum

VK6NK has advised corrected dates for the West Australian Annual Contests reported last month, which are Sunday 17 July for Phone, and Sunday 24 July for CW. (Since these contests will now not coincide with the Jack Files Memorial Contests, VK6 entrants in the Jack Files Contests should send RS(T) plus serial number, not shire code as per last month's rules.)

Contest Details

The following contest details are supplemented by the "General Rules & Definitions" published in April 1993 Amateur Radio.

Colombian Independence Day

July 16, 0000z — 2400z Sat.

This is a worldwide contest, all bands 80-10 m, phone/CW. Categories are single operator, single and all band, multioperator, single and multitransmitter "Call CQ HK". Exchange RS(T) plus serial number. Score 5 points for each HK QSO, 3 points for each QSO with stations in another country, 1 point for each QSO with stations in same country, and 10 points for QSOs with official HK HQ Stations. The multiplier is the total countries including HK plus HK call areas worked on each band. "HK" means all other Colombian prefixes as well. Final score is total QSO points from all bands x sum of multipliers from all bands. At least 2% of QSOs must be with HK, and at least 10% with stations outside your country. Comprehensive awards include achievement certificates to each station making 100+ QSOs. Send logs postmarked by 31 August to Colombian Independence Day Contest, Apartado 584, Santa Fe de Bogota, Colombia.

SEANET DX Contest

CW Jul 16/17, 0000z Sat — 2400z Sun
SSB Aug 20/21, 0000z Sat — 2400z Sun

This annual event is sponsored by the Radio Society of Thailand. The objective

is to promote contacts between amateurs worldwide and stations in the "SEANET" area on 160-10 m (this area includes Southeast Asia, neighbouring oceanic countries, VK, and ZL). Categories are single operator, single and all bands, and multioperator single transmitter all bands. Exchange RS(T) plus serial number starting at 001 on each band. Multipliers are SEANET country prefixes A4, A5, A6, A7, A9, AP, BV, BV/BZ, DU/DV/DX, EP, HL, HS, JA, JD1, JY, KH2, P2, S7, VK1-9, VQ9, VS6, VU, VB, XU, XV, XW, XX, YB/YC/YE, ZK, ZL/ZM1-4, ZL/ZM6, ZL/ZM7, ZL/ZM8, ZL/ZM9, 3B6/3B7, 3B8, 3B9, 4S, 4X/4Z, 8Q, 9K, 9M2, 9M6/9M8, 9N1, 9V.

Scoring is complicated. For QSOs with stations outside the SEANET area, SEANET stations should score 10 points for each QSO on 160 m, 5 points on 80/40 m, and 2 points on 20/15/10 m. For SEANET to SEANET QSOs, count 6, 3, 1 points respectively. Exception, double points apply for QSOs with DU/DV/DX, HS, YB/YC/YE, 9M2/618, 9V, V8. Contacts with stations in one's own country are not permitted for contest credit. The multiplier equals the number of SEANET countries worked times 2, plus the number of non-SEANET countries worked (ie DXCC) times 3. The final score equals the total points times the total multiplier.

No update for this year's contest has been received, so it is suggested you send your log to SEANET 94, Eshee Razak 9M2FK, Box 13, 10700 Penang, Malaysia. Include 3 IRCS for results. Logs must be received by 31 October.

International "Goodwill Games '94" (CIS)

Jul 23/24, 2100z Sat — 2100z Sun.

This contest, sponsored by the Krenkel Radio Club, is open to all amateurs worldwide. Categories are all band only, single and multioperator. Use 160-10 m, exchanging RS(T) plus serial number. Score 3 points per QSO with other continents, and 1 point per QSO with other countries in the same continent (WARC boundaries apply). The rules from the CRC also state "2 points value for each CW QSO", which I imagine means that CW QSOs have twice the points value of phone QSOs. The multiplier is the total R-150-S countries per band, and the final score equals the total all band points times the total multiplier. Awards will go to the top stat on in each category (and presumably each country), and stations making 94 QSOs will receive the CRC RF Diploma and memorial souvenir (the rules are unclear on whether this includes stations making more than 94 QSOs, which presumably it does). Send logs no later than 22 August to "CRC RF, PO Box 88, Moscow, Russia".

YO DX Contest

August 6/7, 2000z Sat — 1600z Sun

In this annual event, everyone can work everyone on SSB and CW Classes are single operator, single or multi-band, and multi-operator. Use 3510-60, 7010-40, 14010-060, 21010-060, 28010-060 (CW), 3700-75, 7040-90, 14150-250, 21200-300, 28400-600 (SSB) Exchange RS(T) plus ITU zone (P2 51, VK4/8=55, VK6=58, VK1/2/3/5/7 59) YOs will send RS(T) plus 2 letter country code. Score 8 points for YO QSOs, 4 points for QSOs outside Oceania, and 2 points for QSOs within Oceania. The multiplier equals YO countries plus ITU zones, and the final score equals total QSO points x total multiplier. Send logs, to arrive by 2 September to RARF, Box 05-50, R-76100 Bucharest, Romania.

Worked All Europe DX Contest

August 13/14 (CW), September 10/11 (SSB), November 12/13 (RTTY); 0000z Sat — 2400z Sun.

The CW section of this popular European contest unfortunately coincides with our RD contest, however, with some finesse it is possible to mix the two. The object is to work European stations (except in the RTTY section, where anyone works anyone). Bands are 80-10 m. In the contest, avoid 3550-3800 and 14075-14350 on CW, and 3650-3700 and 14300-14350 on SSB. The minimum time of operation on a band is 15 minutes, although bands may be changed within this period, if and only if, the station worked is a new multiplier. Categories are single operator all bands, multi-operator single or multi-transmitter (Tx must be within 500 m dia area); and SWL all bands. DX cluster support is allowed. A maximum of 30 hrs is allowed for single operator stations, with up to 3 rest periods (mark them in the log).

Exchange RS(T) plus serial number Addional points can be gained using QTCs, as follows. After working a number of European stations, details of those QSOs (ie QTCs) can be reported during a current QSO with another European station. In the CW and phone sections, QTCs are sent from non-European stations to European stations. In the RTTY section, QTCs can be sent to any station outside one's own WAC continent. A QTC contains the time, callsign, and QSO number of the station being reported, eg "1307DA1A/431" means you worked DA1AA at 1307z and received serial number 431. Commerce QTC traffic by sending the QTC series and number of QSOs to be reported, eg "QTC 3/7" indicates this is the 3rd series and that 7 QTCs will be sent. A QSO may be reported only once, and not back to the originating station. A maximum of 10

QTCs can be sent to the one station, who can be worked more than once to complete the quota. Only the original QSO, however, will have points value.

The multiplier is determined from the number of European countries worked on each band (or on RTTY only, the number of DXCC/WAE countries). On 80 m the number of countries is multiplied by 4, on 40 m by 3, and on 20/15/10 m by 2. The total multiplier is the sum of the individual band multipliers. Final score = (QSOs + QTCs) x multiplier.

SWLs log each station only once per band. Logs must contain both callsigns and at least one of the control numbers. Count 1 point for each station logged, and 1 point for each complete QTC received (max 10 per station).

Use standard log and summary sheet format. Include a checklist for more than 100 QSOs on any band, and if more than 100 QTCs have been sent, include another checklist to show that the quota of 10 QTCs per station is not exceeded. Logs can be submitted in ASCII on DOS disk, providing a paper summary sheet is included. Send logs to: WAEDC Contest Committee, Box 1126, D-74370 Sersheim, Fed Republic of Germany. Deadlines are 15 Sept (CW), 15 Oct (SSB), 15 Dec (RTTY).

European countries are: C3 CT CU DL EA EA6 EI EM/N/O ER ES EU/V/W F G GD GI GJ GM GM (Shetland) GU GW HA HB HB0 HV I IS IT JW (Bear) JW (Spitzbergen) JX LA LX LY LZ OE OH OH0 OJ0 OK/L OM ON OY OZ PA PA1-R26 S5 SM SP SV SV9 SY T7 TA1 TF TK UA1-U16 UR1-U26 YL YO YU ZA ZB2 1A0 3A 4K 4N 4U (Geneva) 4U (Vienna) 9A 9H. This list shows the current European CIS prefixes (zone 16), according to recent information from Russia. However, they seem to change almost weekly, so no guarantees are given! All I can say is good luck sorting out all those special R- and U- prefixes which the Russians seem to like so much in contests.

15th Keyman's Club of Japan CW

Aug 20/21, 1200z Sat — 1200z Sun.

This contest is designed for CW enthusiasts, and will particularly suit those who are collecting Japanese prefectures for awards. An interesting variation is the inclusion of 6 m. The only category is single operator multi-band. Suggested frequencies are 3510-3525, 7010-7030, 14050-14090, 21050-21090, 28050-28090, and 50050-50090. Exchange RST plus continent code (OC), JAs will send RST plus district code. Score 1 point per QSO. The multiplier on each band is the total number of JA districts (max 60). Final score equals total points x total multiplier.

Show duplicate QSOs with zero points, attach a summary sheet showing all usual information, and send the log to "Yasuo Taneda JA1DD, 3-9-2-102 Gyoda-cho, Funabashi, Chiba 273, Japan", to be received by 30 September 1994. ACSCII logs on DOS disk are most welcome.

1994 REMEMBRANCE DAY CONTEST

This contest commemorates amateurs who died during WWII, and is designed to encourage friendly participation and help improve the operating skills of participants. It is held annually during the weekend nearest 15 August, the date when hostilities ceased in the south-west Pacific area.

It is preceded by a short opening address by a notable personality, transmitted on various WIA frequencies during the 15 minutes immediately before the contest. During this ceremony, a roll call of those amateurs who paid the Supreme Sacrifice is read.

A perpetual trophy is awarded annually for competition between divisions of the Wireless Institute of Australia. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice, to perpetuate their memory throughout amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and, in addition, that Division receives a certificate. The winning Division also holds the trophy for the next 12 months, after it is presented at the Annual Federal Convention.

Objective: Amateurs in each VK call area will endeavour to contact other amateurs in other VK call areas, P2 and ZL on 1.8-30 MHz (10, 18 and 24 MHz excluded). On 50 MHz and above, amateurs may also contact other amateurs in their own call area.

Contest Period: 0800 UTC Saturday 13 August to 0759 UTC Sunday 14 August 1994. Stations are requested, as a mark of respect, to observe 15 minutes silence prior to the commencement of the contest. It is during this period that the opening ceremony is broadcast.

Rules

1. The contest categories are
 - (a) High Frequency (HF) — for operation on bands below 50 MHz,
 - (b) Very High Frequency (VHF) — for operation on the 50 MHz band and above
2. Within each category the applicable sections are.
 - (a) Transmitting Phone (AM, FM, SSB, TV);
 - (b) Transmitting CW (CW, RTTY, AMTOR, PACTOR, packet, etc);
 - (c) Receiving (a) or (b)

3. All amateurs in Australia, Papua New Guinea and New Zealand may enter the contest, whether their stations are fixed, portable or mobile.

4. Cross mode operation is permitted. Cross band operation is not permitted.

5. Stations may be contacted once on each band using each mode, ie up to twice per band using Phone and CW.

6. On the 50 MHz band and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous contact on that band and mode.

7. Multi-operator stations are not permitted (except as in Rule 8), although log keepers are allowed. Only the licensed operator may make a contact under his or her own callsign. Should two or more operators wish to operate a particular station, each will be considered as a separate contestant and must submit a log under their own individual callsign.

8. Club stations may be operated by more than one operator, but only one operator may operate at any time, ie no multi-transmission.

9. For a contact to be valid, numbers must be exchanged between the stations making the contact. The number will comprise RS (for phone) or RST (for CW), followed by 3 figures commencing at 001 for the first contact, and incrementing by 1 for each successive contact.

10. Contacts via repeater (including satellite) are not permitted for scoring purposes. Contacts may be arranged through a repeater. The practice of operating on repeater frequencies in simplex is not permitted.

11. A log of all contest contacts must be kept, and should be in the format shown below.

12. Score 1 point per completed valid contact.

13. A summary sheet for each category entered must be submitted to the RD Contest Coordinator (RDCC) showing the following information.

Category (HF or VHF), Section (Phone, CW, or Receiving); Callsign; Name, Address, Total score.

Declaration: "I hereby certify that I have operated in accordance with the rules and spirit of the contest."

Signed: Date:

14. Only the summary sheets for each category/section entered should be submitted. DO NOT send the contest log unless requested by the RDCC. The log should be retained by the entrant.

15. Forward the summary sheet/s to: "RD Contest Coordinator, A. Petkovic VK6APK, 26 Freeman Way, Marion, WA 6020". Endorse the envelope "Remembrance Day Contest" on the front. Entries must be forwarded in time

to reach the RDCC by Friday, 9 September.

16. All entrants making 10 contacts or more are eligible for awards. Certificates will be issued according to the Guidelines for Certificate Issue Remembrance Day Contest.

17. The RDCC may, at his discretion, request a log for checking. If your log is requested, ensure it contains the information shown in the example below before sending it.

18. Any station observed as departing from the generally accepted codes of operating ethics may be disqualified.

Determination of Winning Division:

Scores of VK0 stations are added to VK7 Scores of VK9 stations are added to the mainland VK call area which is geographically closest. Scores of P2 and ZL stations are not included in those of any VK call area, but are considered separately. The scores of entrants located outside their allocated call area will be credited to the call area, in which they operate, ie the score of VK5XY/2 will be credited to that of the VK2 Division.

The formula applied to determine the winning WIA Division is: (Total Contacts per Division)/(Total Licences per Division) x (Weighting Factor). The Weighting Factors are calculated such that if each WIA Division were to perform as well this year as during the preceding 4 years (averaged), the result would be a 7 way dead-heat. Consequently, the most improved Division will win the trophy, and also earn a revised and lower weighting factor for the following year.

Receiving Section Rules

1. This section is open to all SWLs in Australia, Papua New Guinea, and New Zealand. No active transmitting station may enter this section.

2. Rules are the same as for the Transmitting Section, as applicable.

3. Only completed contacts may be logged, ie it is not permissible to log a station calling CQ. The details shown in the example must be recorded.

4. The log should be in the format shown below.

Example Front Sheet

Remembrance Day Contest 1994

Category: HF
Section: Transmitting phone
Callsign: VK1XXX
Name: Joe Brown
Address: PO Box 123, Farm Orchard, ACT 2611
Total Score: 105

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest.

Signed: J Brown Date 20/8/94

Example Transmitting Log

Remembrance Day Contest 1994

Callsign	Mode	Band	Time (UTC)	Station	Number	Points
VK1XXX	SSB	5000	0800	VK2QO	59001	1
VK1XXX	SSB	5000	0802	VK6LL	59002	1
VK1XXX	SSB	5000	0805	VK5ANW	59003	1
VK1XXX	SSB	5000	0807	ZL2AGQ	59004	1
VK1XXX	SSB	5000	0809	VK0XX	59005	1

Example Receiving Log

Remembrance Day Contest 1994

Name/SWL No.	Category	Section	Date	Time (UTC)	Mode	Calling	Called	Number	Points
L30371	HF	Receiving phone	0800	14	SSB	VK1XXX	VK2QO	59001	1
0802	HF	Receiving phone	0802	14	SSB	VK1XXX	VK6LL	59002	1
0805	HF	Receiving phone	0805	14	SSB	VK5ANW	VK5ANW	59003	1
0807	HF	Receiving phone	0807	14	SSB	ZL2AGQ	VK1XXX	59004	1
0809	HF	Receiving phone	0809	14	SSB	VK1XXX	VK2QO	59005	1

Nell Penfold VK6NE

RD Contest Coordinator

"PO Box 2175, Caulfield Junction, VIC 3161

Divisional Notes

VK2 Notes

John Robinson VK2XY

This month's notes contain some real amateur radio news for a change.

Telecom donates more equipment

The arrangement negotiated by yours truly and Roger Harrison VK2ZRH with Telecom late last year for the Institute to receive donations of surplus equipment has again borne fruit. No sooner had the last of the Philips FM828 transceivers been despatched but Telecom donated a very large quantity (by our standards) of printed circuit boards and modules from some of their redundant equipment. This most generous offer was gratefully received on behalf of the Division by Michael Corbin VK2PFQ and your scribe.

The pc boards and modules contain many useful electronic components, such as crystal ovens, low frequency crystals (12 kHz), pot cores, assorted transistors, transformers, etc. To date, we have collected three Econovan loads of these "goodies", along with many pieces of rack mounted equipment.

If you or your club would like to obtain any of these items, please contact the Divisional Office for details. If any interstate clubs are interested and you can

arrange your own transport for many kilos of freight at cheap rates, again please contact the NSW Divisional Office

VK3 Notes

Jim Linton VK3PC

New Life Member

A quiet achiever, John Ambler VK3WF, was made Honorary Life Member of WIA Victoria at the Annual General Meeting. Those attending heard how John, then VK3DJE, had served on council for three years and made a worthwhile contribution. But, due to work and family commitments, he was unable to continue in that role. Wanting to keep up his involvement in WIA Victoria affairs John became the Outwards QSL Bureau Manager. Many in the membership would not know of him and the efficient and dedicated voluntary work he's carried out for nearly ten years. The Life Membership is in recognition of his outstanding service to fellow radio amateurs, and WIA Victoria.

Electric Wireless Wins

Ardent DXer David McAulay VK3EW worked extremely hard to gain his winning 1.4 million point score in the last VK/ZL/O contest. He won the Oceania Single Operator Phone Section of the contest to further add to his record of contest achievements. David received his VK/ZL/O winners certificate at the WIA Victoria annual general meeting. Proudly holding the framed certificate, David told those in attendance how his favourite computerised contest program helped him pull off the victory. The President relayed the congratulations of the WIA Contest Manager, Peter Nesbit VK3APN, who praised the high presentation standard of the winning log. Peter found David's log easy to check, and lamented that was not the case with many of the nearly 300 entered in the contest.

Council for 1994-95

All sitting councillors re-nominated for the WIA Victoria Council and there were

no other nominations. The council consists of Peter Mill VK3ZPP, Bill Trigg VK3JTW, Rob Hailey VK3XLZ, Barry Wilton VK3XV, George Hunt VK3ZNE, and Jim Linton VK3PC. Office-bearers, under the constitution, must be appointed at the Council's first meeting, which at time of writing had not been held. However, it was unlikely there would be any major changes to the portfolios held.

5/8 Wave — VK5/VK8 Notes

Rowland Bruce VK5OU

Avid readers of this column would notice that it didn't appear last month. It has always been difficult to glean interesting information to fill it and, now I am no longer a Council member, virtually impossible. All being well, from next month you will have another scribe. I must say that within my limitations I have enjoyed compiling 5/8 Wave, and I thank all those who helped by providing copy for me to use, but the time has come for a new face.

The Council members for 1994-95 are: Garry Herden VK5ZK, President. Maurie Hooper VK5EA, Secretary, Membership Secretary. Bill Wardrop VK5AWM, Treasurer. Bob Allan VK5BA, Don Wilton VK5KDW; Ian Watson VK5KIA, Grant Willis VK5ZW; Jenny Warrington VK5ANW, Colin McEachern VK5KDK; Mark Spooner VK5AVQ; and Phil Pavey VK5VB.

My final duty is to welcome the following new members. May your involvement in Amateur Radio be long and happy.

John Hinsch VK5ZJG; Adolfo Pereira VK5PP, John Edwards VK5STD; J Scheifers VK5NJO; Brenton Milne VK5BKM; Trevor Munn VK5NDD; J D Woolner VK8ZAO; D M Sumkins VK5KWW; S B Renshaw VK8SR, D J Richards VK5NDR; Henry Kop VK5KUJ, Lionel Lawton VK5OG; Neville Trezise VK5NXB, and Max Strugnell VK5PCI.

The last four are all from the Lower Eyre Peninsula ARC, bringing that club to 100% WIA membership. Well done Port Lincoln!

VK7 Notes

“Spirit” Tasmanian Divisional News

Robin L Harwood VK7RH

In the May column I mentioned that Phil VK7PU was the Divisional Awards Manager, replacing Bob VK7NBF. Phil was only handling the "Spirit of Tasmania" Award. All other Divisional awards are handled by Clarrie Hilder VK7HC. His address is 5 Speed Street, Coome, TAS 7320. Incidentally, the "Spirit of Tasmania" Award has now been issued and dispatched. If you have any queries about this award, contact Phil Harbeck VK7PU at 14 Kennedy Street, Burnie, TAS 7320.

The Hobart Repeater 2 Group has been recently conducting tests on VHF in case they have to shift from their present site. The group also now meets monthly at the Domain Centre on the second Wednesday at 7:30 pm. Don't forget the Domain Centre is open every Wednesday from 12 noon till 5 pm. So, if you are in Hobart, why not pop along and have a cuppa with the gang there.

The Northern Branch of the Tasmanian Division recently elected Joe Gelston VK7JG, as its president, replacing Barry Hill VK7BE, who resigned recently. Barry will continue as SYSOP of the VK7BBS bulletin board and editor of "Network", the branch's bi-monthly newsletter.

The Southern Branch is still looking for a WICEN co-ordinator. We would like to have all three state regions operational, so if you could assist, please indicate at the next Branch meeting.

At the May meeting of the Northern Branch, memories were re-kindled of the Heard Island DXpedition in the late 70s, when Al VK7AN showed a video of the "Anaconda II". It was very interesting and brought back memories of an ex-VK7 operator, the late Hugh Spence who had the call of VK7DS. To hear his voice brought back memories to several in the room who worked with him in the "DCA". Hugh moved to VK6 and his call of VK6 FLYING SAUCERS was heard around the DX nets.

The meetings for July are as follows - Southern Branch, 6 July at 8 pm Northwest Branch, 12 July at 7:30 pm Northern Branch, 13 July at 7:30 pm

Don't forget the Divisional broadcast is on at 2330 UTC Saturdays on 3570, 7090, and 14130 kHz, plus VHF. The Northern Branch Net, "The Amateur Hour", is rebroadcast on Wednesdays at 0930 UTC on 3590 by Boyd VK7KBL



A proud David McAulay VK3EW accepts his VK/ZL/O winner's certificate from WIA Victoria President, Jim Linton VK3PC.

How's DX

Stephen Pali VK2PS*

Propagation is continuing to be generally depressed with a few short openings on the 20 and 15 metre bands. The low bands, 40 and 80 metres, are generally usable for DXing at corresponding sunrise/sunset times, provided one can get used to high noise levels and one can cope with the variety of interference which is typical on the low bands.

You might have noticed that propagation generally is much disturbed in the beginning of each month, then follows a more or less normal pattern for about ten days from the middle of the month, then becomes disturbed again.

The reason for this, according to the experts, is a huge coronal hole which has been growing in intensity for the past several months on the surface of the sun and moves around as the sun rotates on its axis. This coronal hole returns to the visible surface of the sun at approximately the beginning of each month and plays havoc with the bands.

What is the "corona"? One of the outer layers of the sun is called the corona where the temperature rises to about two million degrees Celsius. X-ray photographs taken from spacecraft showed large dark structures called "coronal holes" in which the density and the temperature of the corona is relatively low.

Coronal holes are the sources of high speed streams in the solar wind which, upon reaching the earth, can cause geomagnetic or ionospheric disturbances. Coronal holes have lifetimes of up to 18 months and thus the disturbances they produce tend to repeat at intervals of 27 days, the apparent solar rotation period. So, this disturbed propagation pattern will be with us for some months to come.

Herschel Island — VY1AU

This island, which lies in the Beaufort Sea, is to be activated for the first time in amateur radio history and the callsign to be used will be VY1AU. Members of the activating team are Bill VY1AU, Brian VY1BE, Richard N6VWL, Larry KF6XC and Carl VE8CF.

The group will leave on 23 July from Inuvik in a charter float plane to Herschel where they intend to stay for five days and operate from Pauline Cove, a safe harbour on the east side of the island.

Herschel Island belongs to the Yukon's first Territorial National Park complete with historic old building and graveyards. The

island lies at 69° 60' North and 138° 40' West. It is about 15 km long, about 8 km wide, 183 metres in height and is about one kilometre off the Yukon coast. It is accessible only from mid-May to mid-September by float plane.

The group hopes to have stations operating from a park building. The operating IOTA (Islands on the Air) SSB frequencies will be on 21260 kHz, 14130 kHz, 14260 kHz and some activity on 40 and 80 metres. QSL direct only to John NL7TB.

RSGB IOTA Contest 1994

The second IOTA Contest will take part from 1200 UTC Saturday, 30 July to 1200 UTC on Sunday, 31 July. The aim of the contest is to promote contacts between stations on qualifying IOTA Island groups and the rest of the world. Bands to be used are 3.5, 7, 14, 21 and 28 MHz on both CW and SSB. IARU band plans must be observed and CW contacts must be made only in the recognised CW end of the bands. No operation must take place on the following sub-band segments: 3560 to 3600 kHz, 3650 to 3700 kHz, 14060 to 14125 kHz, and 14300 to 14350 kHz.

For a contact exchange send RS(T) and serial numbers starting with 001 plus the IOTA reference number if applicable. Contest entries, postmarked 26 August at the latest, should be mailed to RSGB IOTA Contest, c/o S. Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey CR7 7AF, England. The IOTA

contest is interesting, not only to the "island chasers" but also to DXers as a number of Island DXCC countries will be activated.

St Peter and St Paul Rocks — ZY0

This was the third expedition to these rocks by the Brazilian Natal DX Group. Unfortunately, this expedition was not as successful as the previous ones as the group ran into a lot of mechanical problems requiring battery operation for quite some time. Also band conditions were not the best during their stay there.

By courtesy of Austin VK5WO I received a detailed report from Karl about the activity. Here are a few details. Four operators used the callsigns ZY0SK (SSB) and ZY0SP (CW). The rocks lie almost on the equator, 0° 56' North and 29° 22' West, 1089 km from Natal which is the capital city of the Rio Grande Do Norte state in Brazil. The rocks are composed of five larger and four smaller rocks and four pinnacles. The highest point on the island is around 35 metres.

The day temperature is 40° to 45° C, which reduces to 20° to 30° C during the night. Rainfall and strong winds occur daily. There is no vegetation or drinking water on the island, only crabs and seabirds. The activity was from 3 to 9 February 1994. They left the mainland with 800 kg of baggage on the fishing boat "Rio Turi". After 70 hours of sea voyage the group reached the island of Fernando Noronha where they had lunch with Andre PY0FF. Five hours later they were on their way again, arriving at the "rock" at 2100 UTC on 2 February.

Activity started on 3 February and



St Peter and St Paul Rocks DXpedition. Tino PT7AA and Ricardo PS7RT making generator repairs.



St Peter and St Paul Rocks DXpedition. Landing on the Rocks.

continued, including satellite contacts, until 9 February. The stay on the island was quite difficult due to winds and rain almost every day. Minor injuries, like the sprained ankle of Karl, kept spirits low.

On 6 February the Honda 300 generator stopped. Fortunately they had fully charged batteries which, together with the second generator, which also stopped running due to a leaking fuel tank, kept them operating for 24 hours. In the end they used only batteries which were charged on the fishing boats doing commercial fishing whilst Karl and his friends were DXing on the top of the rocks. Vertical antennas were used for 10, 12, 15, 17, 20 and 30 metres and an inverted "V" for 40/80 metres. Satellite operation was through AO-10 and AO-13, mostly with European stations.

There was no propagation on 6 metres despite 24 hours monitoring on that band. A total of 4934 QSOs were made on the HF bands and 251 contacts via the satellites. According to an average percentage table supplied by the expedition the ratio of the continents worked was North America 46.76%, Europe 38.54%, Asia 6.43%, South America 6.3%, Africa 1.61%, and Oceania 0.36%. The last percentage number shows only 17 QSOs with the whole Oceania region.

The group finished the expedition with a \$US2500 loss due to the difficult financial times in Brazil (monthly inflation rate is 45%) and there were no commercial sponsors. They had to rely on their own financial resources and help from hams, friends and even strangers. The operators were Neto PS7JN, Karl PS7KM, Ricardo PS7RT and Pergentino

PT7AA. QSL managers are PT7AA (CW) and PS7KM (SSB).

New CIS/Russian Callsigns

The spokesperson for the Republic of Belarus DX Club, Serge, has supplied information about the Belarus callsigns. The prefixes currently in use in Belarus are EU, EV and EW, but most amateurs use only EU and EW.

The EV prefix is used for memorial stations. Club stations have suffixes commencing with the letters W, X and Z. Regions of the Republic have different numbers in the prefix. Minsk City is 1, Minsk Region 2, Brest Region 3, Grodno Region 4, 5 is not used, Vitebsk Region 6, Mogilev Region 7, Gomel Region 8, 9 not used, and visiting amateurs 0.

The situation is even more confusing in the Autonomous Region of Karelia which is situated east of the Finnish border. They currently use the series UA1NVA — NZZ (but UA1NA — NZ aren't Karelians, they are old timers in the City of St Petersburg), RA1NAA — NZZ, RA1NA — NZ, RN1NA — NZ, and RK1NA — NZ. The Club stations are the ones in the three letter suffixes where the second letter of that suffix is either W, X, Y or Z. It is of vital importance when having a contact with a former Soviet Union station to ask in what republic it is situated. Write the name of the republic under the callsign on the back of the QSL card when sending cards through the Bureau.

Future DX Activity

- The Gove Amateur Radio Group will attempt, for the "second" time, to land on Truant Island, OC-185, weather permitting on 15, 16 and 17 July

Operators will be Harry VK8CR, Mac VK8LC and Terry VK8TT. The callsign to be used is VK8TI QSL to Gove Amateur Radio Group, Arnhem Land, PO Box VK8TI, Gove, 0881, NT. The Group will be operational on 40, 20 and 15 metres.

- Try looking for PY0TUP, Trindade Island, on the "222" net or on John's net (7205 kHz) around 0700 — 0730 UTC. A message was sent to the Trindade station via PS7KM that the VKs are waiting for him.
- Dave KA1NCN will be active from the Hotel Robert on St Pierre et Miquelon from 19 to 25 July (including the IOTA contest) as FP/KA1NCN. The SSB, CW and RTTY operation will be on 10-160 metres including the WARC bands QSL to AA1AS.
- F50IJ/TTB was heard during the middle of May on 21 MHz. He will be there for three to four months and hopes to be issued with the callsign TT8PS.
- Canadian amateurs will use XK, XL, XO and VG prefixes from 28 May to 28 July in commemoration of the 50th anniversary of D Day, the landing of the Allied forces in Europe during World War II on 6 June 1944.
- Robert N4GCK has received permission to operate from Yemen as 700CW. He intended to be active as from July 94, however the present civil war in that area might stop radio amateur activity for an indefinite period.
- Cliff V1WGC is active on 7001 kHz and on 10103 kHz around 0900 UTC QSL to Cliff Luxion, PO Box 1117, Apia, Western Samoa.
- A large group of Dutch operators will be active from Malta between 21 June and 4 July. They all will be issued with 9H3 prefixes. QSL to the operators' callbook addresses.
- A group of nine Canadian amateurs will operate from St Paul Island as CY9CW from 12 to 16 August, concentrating with large wire antennas on 40, 80 and 160 metres.
- A third group of four USA amateurs who planned to operate from St Paul Island in July, have now changed their plans. They will now operate from the 19 to 25 September, hoping to have better propagation at that later date.
- As reported by the French Les Nouvelles DX Bulletin, Pierre HB9AMO is active from Angola for 3 months, signing D2/HB9AMO QSL to his home call.
- V31PA is now active for the next 3-4 months. Look for him on 14150 kHz from 2030 UTC on weekends QSL to G6MDM.

Interesting QSOs and QSL Information

- RKKFNA — Vit — 14040 — CW — 0828 — April QSL to PO Box 75, Sakhalin Island, 693000, Russia
- HLC0CBD — Kka — 14040 — CW — 0907 — April QSL via the Bureau.
- ZS94E — Don — 14164 — SSB — 0610 — May QSL to ZS6SA Don Soper, PO Box 2934, Johannesburg, 2000, South Africa.
- J79W — Adriano — 7083 — SSB — 1002 — May QSL to IK2GNW Adriano Nero, Via Scave 24, I-20136, Milano, Italy
- 5N0BHF — Franz — 14276 — SSB — 0620 — May QSL to OE6LAG, Alexander Lenger, Rote Kreuz Str 23, A8662 Mitterndorf, Muerztal, Austria
- 4N7QAT — Zika — 14012 — CW — 0650 — May QSL to DC3SZ, Radivoje Vasic, Ludwigstr 5, D-75417, Muehlecker, Germany.
- 4U9ITU — Seppo — 14195 — SSB — 0834 — May QSL to OH1VR Seppo Sisato, Lansirinteentk 23, SF-33400, Tampere, Finland
- 6V5HN — Nigel — 7080 — SSB — 0748 — May QSL to Nigel Hoyow, Box 135, Kingston, Jamaica 15, Caribbean.
- YJ0AVH — Vince — 7080 — SSB — May QSL to VK4CRR, W Horner, 26 Iron St, Gympie, QLD 4570.
- VR8MW — Meralda — 7091 — SSB — 0742 — May QSL to Meralda Warren, PO Box 27, Pitcairn Island, South Pacific, Via Auckland, New Zealand.
- OA4AEW — Ted — 7008 — CW — 1108 — May QSL via Bureau.
- 9G1SD — David — 14243 — SSB — 0835 — May QSL to NONPL, Jean D Schneider, 5238 E Weaver Ave, Littleton, CO, 80121 USA.

From Here There and Everywhere

- International Communication Day, ITU Day, was celebrated around the world on 17 May. This year Spain was quite active in operating from all the Spanish call areas, stations using both the EG prefix and the ITU suffix. In Australia AX2ITU was active on the 40, 30, 20, 17 and 15 metre bands with a total of 230 QSOs QSL to VK2WI.
- If you worked TY1DX and TY2FG, please send your QSL card, direct only, to IK6FHG before the end of August. The logs will be closed after that date.
- The cards for contacts with A35RK should not be sent to Tonga, but to the home call, KK6H.
- The "mysterious" South Pacific operator who worked as VR8B then as ZK2DX operated a "new call", ZL9A

mid-May, CW only, on the lower edge of the 40 metre band. The response from the Japanese stations was overwhelming He/she did not reply to calls from VK. Save your money and IRCs.

- Paul W8GIO advises that he is the QSL manager for Dave C91W and also for a new resident Thai station, HS0ZBJ and also for C9RDM who became C91S after 6 March 1993. Incidentally, C91S has now returned to the USA.
- Financial restrictions in the Russian budget have caused 4KIC, the Vostok Antarctic Research station, to close down. Vostok had the reputation of being the coldest place on Earth, -54° C, or 129°F below zero, on 21 July 1983.
- C9RJJ, who became C91J after 6 March 1993, now has a new manager. The former manager, W8GIO, has transferred the logs to the new manager N5FTR.
- The ARRL DXCC 1993 yearbook lists the following VK amateurs as at 30 September 1993. Mixed. VK5WO 361, VK3YL 360, VK6HD 350, VK3DYL 330, VK9NS 330, VK1DH 328, VK5QW 328, VK9NL 325, VK2FH 322, VK3AKK 320. Phone: VK6RU 372, VK5MS 371, VK4LC 364, VK5WO 358, VK6HD 349, VK6LK 347, VK3DYL 330, VK9NS 330, VK5QW 328, VK1ZL 327, VK9NL 324, VK1DH 322, VK3AKK 301, VK2AGA 292, VK6VS 283, VK6LC 138, CW: VK9NS 330, VK6HD 326, VK9NL 306, VK1DH 245. A total of 18 VK callsigns for 30 listings. Congratulations.
- Brian VK5FV tells me that he received his TI9JJP QSL card for the November 1992 activity after he sent his second card in November 1993. He received his reply in February 1994 from TI2AOC. On the second occasion he used a larger envelope and a smaller one for reply, unfolded of course. He believes that this arrangement would have rendered detection of cash or IRCs much more difficult. He believes, also, that an isolated envelope arriving at a time when the QSL manager was not deluged with a flood of similar requests would also have been to his benefit. Incidentally, Jose TI9JJP has now organised a more reliable address for QSLing for his March 1994 activity. Send your card to Jose Artimano de Pastora, Office Box Acct 321, CR, 3900 NW 79th Ave, Suite 564, Miami FL-33166, USA. Do not use this address for cards to TI1CF which still go direct to TI2CF.
- An Australian radio amateur, whose name and callsign is known to me and who now lives in the Philippines, is on

"home leave" After reading about Bill's (VR2BZ) experiences (Amateur Radio April 1994) he commented as follows: "Just a few days prior to my departure to VK, I was presented with a "permission to operate class A" permit after 12 months of frustrated effort. Whilst there is VHF equipment around (in the Philippines), more often than not illegally imported and used, there is almost no new or quality HF gear available, resulting in very high prices being asked for very worn and well used HF transceivers. Illegal operation in the VHF bands is common. Everyone, licensed or not, has a handheld. Even the amateurs themselves "pollute" this band by using directional aerials with base equipment to conduct business deals between the islands and/or cities. So they are, consequently, in no position to complain when Government Departments conduct, as they do, their communication in this 2 metre band allocation. It is accepted as the "done thing" So ends the comment of our expatriate.

- It is with regret I report that Jack VK2CX is now a silent key. Jack was a great supporter of the ANZA net and the "14222" net. He did not enjoy good health in the past 12 months.
- "QST", the official monthly magazine of the ARRL, will be sold from selected newsstands in the USA as from 1 June 1994.
- Tom VK4OD reports that, after many tries over the years to receive a QSL card from Romeo for the Sept 1991 contact with 1S0RR, he just received a card sent by Alyona Stepanenko, XYL of Romeo, from the address Box 110, Sevastopol, 335011, Ukraine. To me, the WBBLA route (see Amateur Radio May 94) looks safer and speedier.
- The address of Tod Z31ET is Box 44, Kocani, 92300 Macedonia.
- The recently deceased Lloyd Colvin W6KG, a DX legend in his own time, had one of his life assurance policies assigned to the ARRL and the proceeds of the policy, more than \$150,000, became available to the League. It was Lloyd's intent that the income generated by this endowment, to be called the Colvin Award, would be used to strengthen the international friendship through DXing. The administration details of this award will be known in the near future.
- The DXCC advised that, as from 1 August 1994, the application form for the DXCC award has to be the form numbered MSD-505 (194) or a later number. Please do not use the older

forms as they lack spaces needed for critical information used for processing at League headquarters. Bear in mind that these forms, ie the DXCC booklet with some other vital information (price US\$2.00) are posted to you by the DXCC by surface mail. Therefore, calculate for a delay of approximately 7 weeks.

QSLs Received

HL9HH (1M op), YZ9Z (1Y DLIFDV), T93M (1Y DLIFDV), VK9XO (5M VK4CRR), VK21MD (3W VK2KAA), 8P9DX (8W VE3ICR), D2EGH (4M CT1EGH), V31UO (2M DL7UUO)

Thank You

Thank you to all of you who kept me informed and who assisted me in compiling these notes, especially to VK2DSL, VK2KCP, VK2KFU, VK2OE, VK4AAR, VK4OD, VK5FV, VK5WO, VK8LC, K14RU, PS7KMM, WB8GIO, and the following sources of information, QZRZ DX, The DX Bulletin, The DX News Sheet, The W6GO/K6HHD QSL Managers list and IPS Radio and Space Services.

PO Box 93, Dural, NSW 2158

WIA News

WIA to seek primary status for amateurs on UHF-SHF bands

The Institute is to make representations to the Spectrum Management Agency seeking primary or exclusive status for amateurs on the bands 420 MHz through 10.5 GHz on which the amateur service only has secondary status at present.

A motion at the recent annual Federal Convention, adopting the annual report of the Federal Technical Advisory Committee (FTAC), noted particularly a recommendation that "...action be taken to seek exclusive/primary status on the stated bands."

In his annual report, the FTAC Chairman John Martin VK3KWA noted that 100 MHz of spectrum (on the 13 cm band) will shortly be lost to the Multi-point Distribution Service (MDS). Action should have been taken to protect the Amateur Service's interests in the band more than five years ago when it was foreshadowed by the regulatory authorities that amateur privileges on the band would be curtailed, John Martin said in a separate, more lengthy report.

"The WIA must take a more alert and active approach to the problem of protecting these bands," John Martin said in his report. His third recommendation was: "That the WIA develop plans and policies to protect all shared amateur bands from future threats.

Specifically, that the WIA seek to obtain exclusive or permitted status for amateurs in a portion of each shared band from 420 MHz to 10.5 GHz."

The principle is that it would be better to have exclusive use of segments of these bands rather than share the whole of the bands as a secondary service, with the possibility of them being allocated to some new primary service that may arise in the future as we have seen happen time and again over the years.

This and other issues will be pursued during regular discussions between the Institute and the SMA.

The issue of the Amateur Service's status on the UHF-SHF bands was also canvassed by the Institute's International Regulatory Coordinator, David Wardlaw VK3ADW, at the Federal Convention.

In his report to the Federal Convention, David noted that: "The Amateur Service has no primary allocation between 440 MHz and 24 GHz in any region. With the introduction of new services and the pressure for additional allocations to make room for them, it is inevitable that our five bands between 1 GHz and 24 GHz will be under scrutiny."

"The WIA will need to take a close look at the situation of these microwave bands and provide input to the IARU on the matter."

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Packet World

Grant Willis VK5ZWI*

New Packet Network Software Releases

Depending on where you are in Australia, it is possible that you will have access to either a Rose or NETROM network switch. These switches provide more intelligent packet repeating facilities. Two of the more popular systems, Rose v3.4 and TheNet X-1J have recently had the following updates included.

Rose Version 3.5

Rose Version 3.5 will be available soon, which includes a bug fix for TCP/IP which will allow any size datagram to be passed through the network when using the AX25 fragmentation protocol available in the NOS programs. This means you could have a 10 kbyte TCP/IP packet with only one TCP and IP header passed over a Rose network.

Also coming in the new version is support for 64 k EPROMS. This will allow the Rose application software, which is currently manually loaded into the switch by the repeater manager, to be permanently available in the EPROM. This includes the CONFIG, INFO, USERS and HEARD applications. The 64 k EPROM size support is currently only for a TNC-2 although support for the other Rose capable TNC types will be added in future versions.

The next item to be worked on once v3.5 is completed is the NODE Application (I am not sure if that is its real name) which will provide a Netrom style interface to the Rose switch.

Another new feature being added to ROSE, which we hope will appeal to TCP/IP and TPK users, is the ability to transport UI frames across the network. The ROSE Network will setup a Virtual Circuit to pass the first UI frame, and leave the VC up until a timer expires. All further UI frames across that path will travel, as far as ROSE is concerned, along that VC. However, to the outside world (TCP/IP users, and others) it will appear that the network is passing unconnected UI frames (datagrams).

If anyone has comments for this (and other) ROSE development, Tom Moulton can be reached via the Internet as w2vy@ram.com

TheNet X1J Release 2 Packet Node Software

This release includes several new gadgets for X1J node operators and users.

The node now supports four analogue input ports:-

Port 1 is for the previously announced Deviation meter
Port 2 is for the new Signal strength meter addition
Ports 3 & 4 are general purpose input ports.

Other changes include a fix to the BBS, ALIAS and DXCLUSTER commands, support for the TexNet "**** LINKED to" syntax, the ability to change the user's command prompt list and the ACL function has had a feature added to speed it up.

A menu driven windowing patch utility with context sensitive help is included. Utilities for printing passwords in a sysop-friendly manner and a utility for changing the help text are also provided. Modifications for the MFJ1278C TNC for the bank switching which allows a 64 k EPROM to be used are now also included.

Packet BBS Message Authentication Developments in the USA

The FCC, in consultation with the ARRL, have recently changed the requirements for packet radio BBS mail handling in the United States. I received the following from the US and reproduce it here for everyone's information

Report No. DC-2582, ACTION IN DOCKET CASE, April 4, 1994
COMMISSION AMENDS RULES CONCERNING MESSAGE FORWARDING SYSTEMS IN THE AMATEUR SERVICE: (PR DOCKET NO. 93-85)

The FCC has relaxed the amateur service rules to enable contemporary message forwarding systems to operate at hundreds of characters per second while retaining safeguards to prevent misuse.

A message forwarding system is a group of amateur stations participating in a voluntary, cooperative, interactive arrangement where communications from the control operator of an originating station are transmitted to one or more destination stations via forwarding stations, which may or may not be automatically controlled.

Currently, the control operator of each station is held individually accountable for each message retransmitted, resulting in unnecessary content review and delays. The American Relay League, Inc (League) stated that the obligation of the

control operator of the first forwarding station should be the establishment of the identity of the station originating the message. Only when this is not done should these control operators be held accountable for improper message content. Also, there is currently no central supervisory authority in an ad hoc amateur service digital network, making these unsupervised systems easy targets for misuse by uncooperative operators and non-licensed. Moreover, the Commission said that it could be difficult to establish after the fact that a particular VHF station originated a fleeting high speed digital transmission. For these reasons, the Commission said there must be on-going oversight of the system and the control operators of the first forwarding stations are in the best position to provide such oversight.

Therefore, the Commission will hold accountable only the licensees of the station originating a message and the licensee of the first station forwarding a message in a high speed message forwarding system. The licensee of the first forwarding station must either authenticate the identity of the station from which it accepts communications on behalf of the system, or accept accountability for the content of the message.

The Commission also clarified that the station that receives a communication directly from the originating station and introduces it into the message forwarding system is the first forwarding station.

The League and the Colorado Council of Amateur Radio Clubs suggested that the Commission substitute the word "simultaneously" for "instantaneously" in the redefinition of a repeater. The Commission concurred and adopted this modification.

The Commission believes that these rule changes will enable contemporary high speed message forwarding systems to operate as their designers intended, while retaining the minimum safeguards necessary to prevent misuse.

HF Packet Keyboards: An Update

Following my article in last month's edition of Packet World, there were some frequency changes implemented to the Keyboarder Groups on HF Packet. You will now find many of the keyboard stations operating on 14.102.9 MHz while there are some still remaining on 14.096 MHz. There are also some user access BBS stations experimenting on 10.145 MHz that would benefit stations particularly in the SE of the continent. These are VK5HB and VK7AD.

One thing that is disappointing to see

is some HF packet users have taken to clogging up 10.149 MHz which is primarily used for mail and bulletin forwarding. Their recent activities have dramatically slowed packet mail flow between some eastern and western states as well as to Tasmania. I wish to encourage all HF Packet User stations to access some of the new keyboarder frequencies in preference to the mail forwarding channels. Clogging up the mail forwarding disadvantages not only the BBSs directly but hundreds of packet

users around the country as their mail is delayed

The Packet Doctor

If you have a query that you would like to ask the packet doctor, why not put pen to paper and send it to:

The Packet Doctor
GPO Box 1234
Adelaide, South Australia 5001

Queries will be selected and included in future editions of Amateur Packet World.

Conclusion

I have held over the discussion on mail forwarding till next month due to time constraints with work and study commitments. I am also interested in hearing from any Packet BBS SysOps using the CLIVE database software about which I hope to include some information in the August edition. I am also preparing some feature articles on using Rose and NET/ROM including some usage examples. "C/O GPO Box 1234, Adelaide 5001" **nn**

FTAC Notes

John Martin VK3KWA, Chairman, Federal Technical Advisory Committee*

13 cm Band Plan — "Plan B"

The suggested new band plan for 2400 MHz has been revised in response to comments and information received from VK3UM, VK4KZR, VK5MC and ZL2SX. The main change is that the weak signal segment will have to move higher in the band due to satellite operation below 2401 MHz.

There is some concern about equipment bandwidth and the need for new crystals but we have no choice in the matter. In many areas it may be possible to stay on 2304 for some time, but for DX operation the only option will be to go above 2400 MHz where everyone will still be able to operate.

The proposed "Plan B" is shown in the diagram. The major change is a move for the weak signal segment to 2424 MHz, as used in other Region III countries. Repeater and link segments use 20 MHz offset on 2426 and 2446 MHz. FM simplex segments are located close to the repeater and link outputs.

The upper ATV channel can be used for any mode but it is suggested that the lower channel be AM only. It should be possible for MDS equipment to receive

ATV on this lower channel with little or no modification.

Any comments would be welcome as soon as possible.

23 cm Band Plan — 1275 MHz Radars Closing Soon

Some 1275 MHz radars have already closed and it is assumed that we will soon regain the use of the 1270 — 1280 MHz radar guard band. Several enquiries have been received about the situation.

At present we are waiting to hear from the SMA on when it will be possible for us to start "moving in". When the guard band becomes available, several changes can be made to the band plan.

One is to add an extra weak signal segment alongside the satellite band at 1270 — 1271 MHz. This will follow the international trend towards moving terrestrial operation closer to the frequencies used by satellite operators.

Another change, although not related to the radars, is the growing amount of FM simplex activity around 1290 MHz (within the 1285 — 1292 MHz ATV channel). It is not likely that this operation will shift, and the result will be interference problems.

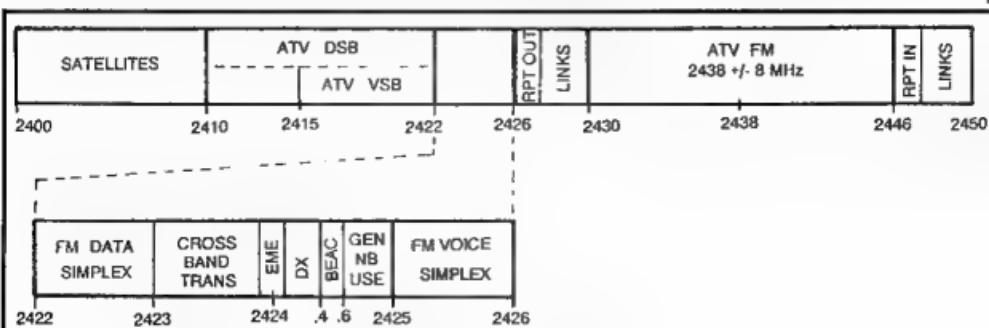
It is proposed to get around the problem by moving the band plan FM simplex segment to 1290 MHz, where the existing activity is.

I feel that it is reasonable to make this change now while the level of activity is still fairly low. However, we cannot keep on changing the band plan every time a new group comes on the air and picks a frequency. It would help a great deal if everyone familiarised themselves with the band plan and avoided causing clashes with other people.

The major change relating to the closure of the 1275 MHz radars will be that we can choose whether to change over to the international standard 20 MHz repeater split. If this were done, the repeater and link outputs would move down to 1271 — 1274 MHz. Combined with moving the FM simplex segment to 1290 MHz, this would clear 1274 — 1290 MHz for all ATV modes (VSB, DSB or FM).

This change is NOT certain and will NOT happen before repeater licensees have been consulted. I have written to Technical Advisory Committees and other groups in all states with a detailed proposal and a request for their comments. If anyone else would like to receive a copy, please contact me via the WIA Federal Office and ask for a copy of FTAC paper 94/0508.

*PO Box 2175, Caulfield Junction, VIC 3161



Over to You — Members' Opinions

All letters from members will be considered for publication, but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

WIA Frequency Plan

Recently I helped a student to study for his regulations exam, and during our research we came across the Spectrum Management Agency's amateur frequency plan (see SMA brochure RIB 71, revised Dec '93, Appendix B).

It then struck me that, in accordance with the Radiocommunications Act 92, anyone who had the appropriate certificate could transmit legally anywhere in the frequency bands listed using any mode he wished subject to the footnotes listed for each band. For example, he could use Morse code anywhere in the bands 3.5 MHz to 30 MHz, restricted only by the footnotes.

We know that this is not so, for a gentleman's agreement exists, sponsored by the WIA, which recommends that certain modes be used on certain band segments only, in an attempt to satisfy all operator requirements.

This is fine in theory, but how does the novice know of these plans? They are published in the WIA Call Book and in occasional issues of *Amateur Radio* magazine. Less than 50% of amateurs are members of the WIA and would have easy access to these publications. How do other amateurs know of these plans? Perhaps by word of mouth, radio clubs, on air information, etc.

This, to my mind, is a very unsatisfactory state of affairs.

To remedy this situation I suggest that the WIA may consider issuing a booklet on amateur frequency plans something like other ham booklets which are readily available through commercial channels, eg 1000 Questions for Novice candidates, Novice Electronics, etc.

It could be a simple black and white booklet costing about two to three dollars with the frequency bands shown horizontally rather than as in the RIB booklet. This would be cheaper than buying a Call Book just to find out about amateur frequency plans.

Furthermore, it would seem appropriate at a time of SMA licence review to ask the Agency to include a reference to the WIA Frequency Plan. Maybe something more could be done to advertise Amateur Frequency Plans widely and make them more cheaply and readily available to everyone.

Quinton Foster L30720
77 Church Street
Beaumaris VIC 3193

(Some years ago the WIA published a cheap *Band Plans* booklet, but there was little interest from amateurs. It seems that amateurs, WIA members or not, preferred the full band plans to be published and updated each year in the WIA *Call Book* which is available to all amateurs from both WIA and commercial outlets. Ed)

Limiteds on Ten

We are constantly being told that we should be members of the WIA because, among other things, the WIA is the only body which can sensibly negotiate with the licensing body on behalf of us amateurs. One would like to believe that there is some truth in this but an opinion I have often heard expressed during my 37 years as a licensed amateur is that WIA "negotiations" have frequently been pussyfooting and weak.

We amateurs expect that now the rights of the individual are being recognised and discriminatory practices outlawed our WIA negotiators can approach the licensing authority secure in the knowledge that we have as much right to the use of the radio spectrum as anyone and more right than most. Our use of it is concerned directly with the quality of life rather than commercial interest which is the main motivation of other users. This means that there is now no reason for WIA negotiators to be over-ridden by the SMA.

Right? Good. Now consider the following. There is a move to allow limited licensees some access to the ten metre band. I assume this was initiated by the WIA and some may consider it a big deal, particularly since the WIA has never done anything for limited licensees before. (The Limited licence was a WIA initiative in the first place. Ed) The essence of amateur radio resides with limited licensees. Big deal? Certainly not if the modulation mode is to be restricted to FM as reported.

Now I cannot believe that such a ridiculous idea was actually proposed by the WIA so I must assume that it is another case of our "negotiators" having their proposal for normal limited licensee operation on ten metres once again quashed by the SMA!

This is simply not acceptable. Everybody knows that FM is not real amateur radio operation and to accept such a restriction is to further the demeaning and trivialising of amateur radio which is already advanced on repeaters.

If the WIA cannot negotiate the use of ten metres for limited licensees with the same conditions as apply to their operation on other VHF bands amateur radio would be better served to have the idea dropped altogether.

DO IT PROPERLY OR NOT AT ALL!!!

G J McDonald VK2ZAB
59 Wideview Road
Berowra Heights NSW 2082

Kit Problems

The article by Alex Edmonds VK3BON on "Home Brew/Kit Building" in May's *Amateur Radio* does great discredit to homebrewers and kit builders.

In a hobby in which we are trying to foster the "build it yourself" approach and not to be "black box" operators, it was an article I felt was not necessary.

As an oldie and home brewer from way back I believe we want to encourage amateurs and SWLs to have a go at "rolling their own". In regard to Alex's comments on things not being correct, I was always told that the only way to learn was by correcting one's mistakes!

The ultimate in kits was the Heathkit company in the USA, unfortunately no longer in the business. Any oldies who had experience with a Heathkit know what I mean. I believe they started many building their own amateur radio station. No other kit suppliers came up to their standards. Take note Mr Dick Smith, Jaycar, and others.

Electronics Australia has an article on the availability of kits both here and overseas last year, well worth referring to. I have never had any trouble importing kits from overseas, provided you do not get greedy and want more than one at a time. A builder should choose the kit project whose complexity suits his/her technical ability. I like the way Dick Smith rates his kits in this way.

So don't let Alex's article put you off "home brew". As I said at the commencement of this letter, you only learn by correcting your mistakes!

73 and keep your soldering irons hot....

Steve Mahony VK5AIM
19 Kentish Road

Elizabeth Downs SA 5113

(Alex was only making fun of kit building, Steve, not home brew in general, where one finds one's own components by all sorts of devious means! Perhaps his real point is that we should be more self-confident and not so dependent on the kit supplier to include every tiny item. Ed)

Military Radio

I read with interest Colin Mackinnon's article "A Russian Military Aircraft Radio" in May's *Amateur Radio*. Having seen the

particular set "in the flesh", before it disappeared into a shed (or was it a well?), I can vouch for its similarity to an SCR522.

Unfortunately Colin's opening paragraph is not quite correct. The original set was the TR1143, which was built in the UK. This set appears outwardly to be an SCR522, but the innards are quite different. The two types were designed to be interchangeable as whole units, hence the un-American sockets on the front of the SCR522.

When the 522s were built they had dual identification plates, the black plates having the US Army Signal Corps ident and the red plates the Air Ministry ident. The TR5043 is the UK ident number for the transceiver known more commonly as

the SCR522. (The receiver BC624 is also R5019, the transmitter BC625 is also T5017 depending on where you are!)

While Colin claims the 522 was still in use in the 1950s, I can remember a truck arriving in my front yard about six years ago containing the purchases from a government auction, which included a quantity of just released 1942 version SCR522s. I'll leave you to work out who was driving the truck!

Ian O'Toole VK2ZIO
Castle Hill Military Radio collection
222 Old Northern Road
Castle Hill NSW 2154

(The TR1143 was still in use as a "ship to air" radio when I spent some "sea time" on board the British submarine, HMS Telemachus, in 1955. Prod Ed)

Callsign Review

The SMA is currently reviewing the amateur radio callsign system within Australia. This review will be covering such issues as usage of callsigns throughout Australia, visiting overseas amateur callsigns and the continued use of special callsigns beyond specified time limits.

If you have thoughts or ideas on a system or enhancement, please let your Federal Councillor know them, and also let others know by writing a letter to Amateur Radio for publicity in these columns.

Neil Penfold VK6NE
2 Moss Court
Kingsley WA 6026

International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

Gordon Loveday VK4KAL*

Unconfirmed reports of intrusions into the amateur satellite frequencies have caused great concern. The satellites in question are RS10 and 11. The intruders use 2 metre equipment on the "uplink" when the satellite footprint is over the Indonesian Islands. The "downlink" operates in the 10 metre band, which is where the intruders have been heard. More information is sought, so the problem can be brought to the appropriate authorities. Downlink frequencies are 29.360 and 29.400 MHz.

A noticeable falling off of a number of Government RTTY and CW intruders in the 7, 14 and 21 MHz bands has been noticed. Whether this is permanent or seasonal, time will tell! Those noticeably down are UHF3 on 7014 and 7048, UMS on 21284, 7008 and 7139 (not heard often

in VK), and UID80 on 14170 MHz.

From our own region we have an influx of Indonesian intrusions, causing considerable problems for us in the 40 m band, mainly from 7.000 to 7.055 MHz, both on USB and LSB between 0000 and 1600 UTC.

Keep in mind that information is still needed. For those not familiar with the language (most of us) a few clues may help. The language most used is a lower standard of Bahasa Indonesian, but they do use some amateur codes, eg 73, 88, YL. The following may be of assistance. Cangulan = office, place of work. Kibek = house, place of stay. TM = pirate hams (from teman = friend). Cewek = YL. Rambut panjang = YL (long haired one). Perangkap = transceiver/radio. Buka perangkap = switch the transceiver on.

Koma = QRT (from comma, to continue later). MD = to bathe (from mandi = to bathe). Turun = QSY down. Naik = QSY up. Lanjut = go ahead. Jumpa di darat = QSO eyeball.

I now quote part of a letter from a Norwegian observer, LA7NK, to the Region 1 co-ordinator about "obscene language from intruders". From time to time we have all come across this bad practice. I quote, *"This is not a new problem for the Monitoring Service and the manner in which to deal with these people is extremely difficult to define. I would submit that we as self disciplined ethical amateurs would, I believe, be contravening the conditions of our licence if we actually engage in direct on-air communication with unlicensed operators. We should not demean ourselves by entering into discussion or swearing matches with these people. Certainly the aggravation is not worth the while. I realise that each amateur must treat the matter in the manner he so wishes, but if I may offer my personal opinion, listen and try to obtain as much information as possible. These operators frequently give names and addresses and sometimes telephone numbers. With this information I am happy to write to the national society of the country concerned asking them to take appropriate action. We are using our frequencies by right so never lose your temper. It only brings you down to their level. They are simply not worth it."*

*Federal Intruder Watch Co-ordinator, Freepost No 4 Rubyvale QLD 4702 or VK4KAL@VK4UNI.ar

From Region 1 comes a report of some regulars, many familiar to VK observers:

Freq	Baud shift	Mode	Location	Details	Admin
7010.00		CW	MNR Moscow	"UMS"	Rus
7038.90		CW	Arkhangelsk	"S" beacon	Rus
7039.00		CW	Moscow	"C" beacon	Rus
7039.00		CW	Odessa	"D" beacon	Ukr
7048.00		CW	Nr Moscow	UHF3	Rus
7080.00	40.5/500	8181			Rus
14000.00		CW	Coast stn Haifa	"4XZ"	Isr
14340.00	50/850	Bd1.5Stb	Beijing	"BAF47"	Chn
18072.00	81/503	8181			Rus
18101.50	100/170	Sitor A	Jakarta	MFA Jakarta	Ind
21284.00	50/248	Bd1.5Stb	MNR	"UMS"	Rus
21327.00		CW	Naval HQ		
			Vladivostok	"RJS"	Rus
21369.10	50/993	Bd1.5Stb	Pyongyang		Kre

Pounding Brass

Stephen P Smith VK2SPS*

Continuing on from last month on nets, we will focus our attention onto VK3COD, last of the Victorian nets. This net came about when VK3DES and VK3DXE (now a silent Key) helped to train Len VK3COD to overcome that 10 wpm barrier and achieve full call status under the "condition" that, when he passed his exam, he would establish a "net" and help others to obtain their licence. A trial period of 12 months was proposed and some 14 years later, Len VK3COD is still teaching Morse.

This I believe to be the longest single-handed-run net in Australia. I should also mention that Steve VK3CSD has assisted Len over the years by keeping the net active whilst Len, a member of the EMDRC, attended committee meetings.

The net is run nightly from 1030 UTC to 1130 UTC on 28.340 MHz and 147.425 MHz. At one stage the net Morse was sent using a hand key but now is computer generated. The passages are of plain text with numbers and punctuations. They range in duration from four to five minutes in length, at speeds ranging from five to thirteen wpm, thereby catering for all levels of operators.

At the completion of a passage the text is read back and corrections made. This continues until the net's closure at 1130 UTC.

I would like to say well done Len on a magnificent job and something to be very proud of.

We will now move from Victoria to South Australia VK5WI/VK5AWI. This net was originated in early 1975 by Jack VK5JT who was asked by the Divisional Council to organise a Morse practice net. The original panel consisted of Jack VK5JT, Norm VK5NM, Jim VK5LU, Ian VK5LI, Rob VK5RA and Leith VK5LA. The abovementioned six operators had to cover seven nights, with the seventh night being covered by one operator on a six week roster.

The first session went to air on 16 June 1975 under the call VK5WI, which was changed to VK5AWI in 1979.

Ron VK5AAC and Emlyn VK5AEJ, whilst not members of the original panel, date back almost to the inception, and are still involved with the net to this day. The current panel, as of May 1994, consists of Ivan VK5HS who has the Monday session, Kingsley VK5AKN on Tuesday, John VK5ARK on Wednesday, Doug VK5GA on Thursday, Ron VK5AAC on Friday, Emlyn VK5AEJ on Saturday and Trevor VK5BWE on Sunday. Kingsley

VK5AKN took over from Wayne VK5AC as Morse co-ordinator in April this year.

The net commences at 1030 UTC on 3550 kHz Sunday through to Sunday. Speeds range from four to fourteen wpm. Text with numbers and punctuation is sent again at four to six minutes duration. Corrections are made at the end of each passage.

After the Saturday session, Emlyn VK5AEJ usually sends for an extra 30 minutes at high speed (20-30 wpm) to cater for the more advanced operators.

We will now leave South Australia and look at the Queensland nets. Slow Morse sessions in VK4 are co-ordinated from the Townsville Amateur Radio Club. At the beginning of 1982 seven clubs participated, covering each night of the week. The clubs involved were Townsville, Rockhampton, Mackay, Dalby, Gladstone and Redcliffe.

When Sally VK4SHE took over from Bill VK4XZ in 1990, the number of clubs involved in Morse transmission had decreased somewhat in strength, the reasons being lack of volunteers, lack of interest, and volunteers being discouraged when no one called in on the session. Sound familiar?

Attempts to recruit new volunteers has met with limited success. At present the number of stations sending practice Morse are VK4WIT Townsville, on Monday at 0930 UTC on 3535 kHz; VK4WCH Central Highlands on Wednesday at 1000 UTC on 3535 kHz; VK4AV Gladstone area

on Thursday at 0930 UTC on 3535 kHz; and lastly VK4WIS Sunshine Coast on Sunday at 0930 UTC on 3535 kHz.

3535 kHz is the WIAQ standard Morse practice frequency. It should be noted that VK4WIT and VK4WIS are clubs with a roster of operators. VK4WCH and VK4AV are single operators with the occasional stand-in.

Nigel VK4AV runs his net by introducing himself and explaining how the net will proceed. He transmits text of about five minutes duration at five wpm and at the completion of this he goes straight into seven wpm. At the completion of seven wpm he reads back the last two passages and any corrections made. He then proceeds with 10 and 12 wpm following the same guide lines. At the completion of the evening session, call backs are asked for so Nigel can get an idea of the number of operators on frequency, and to answer any questions they may have regarding the evenings activities.

Looking at the other clubs, they usually commence with identification, followed by three to five minute segments at speeds of 5, 8, 10 and 12 wpm with read backs after each segment.

The TARC supplies Morse tapes of different speeds to operators who wish to use them for the evening sessions, or the operators can use other means ranging from hand key and keyer combinations to computer generated Morse.

This concludes Morse Practice Nets. If anyone requires a print out (will be in column format) just drop me a SAE. I will submit NSW Nets at a later date as I am currently chasing up further information on the subject.

*PO Box 381, Mona Vale, NSW 2103

Spotlight on SWLing

Robin L Hardwood VK7RH*

HF conditions lately have been extremely poor and I have been mostly concentrating on frequencies on the lower end of the spectrum. It has been rather surprising with a new country logged for the first time. It is Mexico and is on 6185 kHz at around 0730 UTC. The modulation was good and the signal level varies from day to day. The call sign of the station is "Radio Education" and is based in Mexico City. It may be operated by the Ministry of Education. I noted bilingual tourist promotion spots plus I/D announcements in English and Spanish. The music is very distinctive, being quite different from the Andean folk music styles one hears from other Latin American stations.

Another station from Central America has also been well heard here. It is "Adventist World Radio — Costa Rica". This religious station is on 6150 kHz and I heard English programming at approximately 0800 UTC. Ironically, the particular program I noted, "Your Radio Doctor", was produced in Sydney. The signal level was fair to good, yet this is not surprising as station "TIWR" is utilising the same 50 sender and channel that "Radio Impacto" used in the 80s. The latter broadcast to the Nicaraguan Contras and to Panama, reportedly being backed by the CIA. When the political climate altered in Central America, the station became redundant and Adventist World Radio purchased the sender.

moving it to another site within Costa Rica. They also moved most of their existing operations from Honduras.

Swiss Radio International in Berne recently axed the popular "Swiss Shortwave Merry-go-Round" with the two "Bobs" I have heard this program, off and on, ever since I commenced shortwave listening almost 40 years back. The program catered for the casual listener or active DXer who had technical queries and wanted simple explanations. I did note on Internet that there were some who were trying to drum up support for the program's retention, but I think SRI are locked into satellite programming and delivery and wish to phase out HF broadcasting. SRI programming to European targets is almost exclusively now on satellite transponders for rebroadcasting over cable systems or domestic stations.

However, other international broadcasters are not so sure that there will be more listeners to satellite transponders than on shortwave, despite the technical advantages of the newer systems. There are, significantly, an increasing number of national administrations who have banned or placed restrictions on the private installation of satellite dishes. This is primarily aimed at TV. Also, as Jonathon Marks of "Media Network" points out, mass-produced commercially available satellite radio receivers have not been developed or promoted, compared to the millions of shortwave receivers now available at a fraction of the cost of a satellite receiver/decoder.

Also some program makers are questioning the wisdom of placing satellite feeds to domestic stations for rebroadcast. The host station can edit or suppress items down the system. Several international broadcasters also have had difficulties, particularly in Paris, getting foreign language programming to air, because of the insistence of French administrators for broadcasts to be exclusively in that language. I believe that the BBC World Service is no longer on Paris FM stations, nor the VOA English output. Therefore, it is clear that shortwave broadcasting will continue for some time and won't disappear overnight, as some have maintained.

The US Congress recently passed legislation to create "Radio Free Asia", similar to "Radio Free Europe/ Liberty". It will broadcast to China, Cambodia, Vietnam, North Korea and Burma. No commencement date has been announced yet but I expect that we will note it by the presence of jammers on the frequency. "Radio Free Asia" will be

independent of the existing VOA operations.

I have received a request from Don Graham VK6HK, who has been approached by Radio Station WEWN in Birmingham Alabama. This shortwave broadcasting station is looking for monitors in this region of their signals. This station is part of the Catholic Eternal Word Television Network, founded by Mother Angelica Rizzo. Programming is in a variety of languages and consists of devotional readings, prayers and discussions. It is best heard here on 9350 kHz from 0700 UTC onwards. Other frequencies in parallel are 9370 and 7465 kHz but not all the time. If you are able to assist, I suggest that you write to: Don Graham VK6HK, 42 Purdon Road, Wembley Downs, WA 6019. The address

of Radio WEWN is PO Box 100234, Birmingham AL 35210, USA.

Those SWLs who mainly concentrate on Utility Services, may be interested to know that the 9th edition of "Ferrell's Confidential Frequency List" will be published shortly in the USA. Well-known DXer Arthur Cushee has notified me that limited copies will be available later this year at a cost of \$50.00. Further details from Arthur Cushee, 212 Eam Street, Invercargill NZ.

Well, that is all for this month. Don't forget, if you have any news, you can contact me at the addresses below. There will possibly be also an e-mail facility available soon. All the best of listening and 73.

"54 Connaught Crescent, West Leunceston TAS 7250
VK7RH@VK7BBS.LTN.TAS.AUS.OC
ar

Technical Correspondence

All technical correspondence from members will be considered for publication, but must be less than 300 words.

Standing Waves

Bill Rice is right. Antennas and feedlines are at once the most interesting, and the most misunderstood, of all of the aspects of ham radio.

In his "Update" in May *Amateur Radio*, Bill seeks to clarify some of the several misconceptions contained in John Gazzard's original article "Tuned Feeders and Multiband Antennas" (April *Amateur Radio*).

Bill's first two points are well phrased but, in the third, he states, "The ATU . . . giving a better match to the transmitter . . . Thus, by optimising the power transfer, it will change the amplitude of the standing waves on the feeder and on the antenna."

The beginner is likely to read that as meaning, "change the amplitude of the standing wave RATIO", but, of course, the ATU cannot do that.

It would have been better to say, "The ATU will optimise power transfer into the system, but cannot affect the standing wave ratio, NOR THE POSITION OF THE STANDING WAVES IN SYSTEM".

Al Rechner VK5EK

PO Box 12

Old Noarlunga SA 5168

(Agreed, completely, Al. Most of our problems are caused by ambiguous wording, aren't they? Ed)

Good News for Experimenters

Good news for genuine amateur radio experimenters. The two terminal oscillator (TTO) has been rediscovered, by *Radio*

Rivista

In March '93, G6RO in March '94
Radio Communication and brought to VK
attention by VK3GI in May '94 Amateur
Radio.

The relative merits of the TTO and the Dip Meter can be debated at length but I recommend every amateur radio lab should have both.

The TTO and the DM, coupled with a knowledge of passive circuit analysis, and assistance from a scientific calculator, enables an experimenter to do all the things expected of a Noise Bridge, a Q Meter, an RF R-X Bridge, et al, and many things those expensive items can never do.

I suggest you all now get crackin' and build yourself the TTO described in May *Amateur Radio* and learn how to use it to measure both lumped and "in circuit" L & C; then you will be in a position to question the pronouncements of experts and gurus awarded those titles by credulous admirers and sponsored by some magazine editors.

Lindsay Lawless VK3ANJ
Box 760

Lakes Entrance VIC 3909

(*"Guru"* means "teacher", Lindsay. What did George Bernard Shaw say about teachers? Ed)

Technical Correspondence

Further to the discussion on the theory for termination of antenna transmission lines and the "facts" as presented in *Amateur Radio*. These should not be the major concern of the Editor and

associated Technical Editors when the article is published under the byline of the author!

These "facts" are the concern of those who reply in Technical Correspondence to promote healthy debate and interest by, and for, the readers.

If technical articles are edited to be strictly in accord with established facts then nothing will be published that has not been in texts for the past fifty years. Also the voluntary staff will be swamped checking detail and probably rewriting or even plagiarising the information!

Another example of these "facts" is the true power represented by the peak amplitude of a SSB signal. That argument, and the meaning of the terms used, has been controversial ever since Art Collins publicised the transmission method over 40 years back.

If the article is topical, of reader interest, and well presented then publish and, rest assured, errors will very soon be notified whether by author or by editor

As in this case the misunderstood areas of amateur radio theory are best highlighted in Technical Correspondence. There is no need for apology by the Editor except for production errors.

Keep up the good work Bill.

William A McLeod VK3MI
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More on the Z Match Antenna Coupling Unit

I rate the September 1993 version Z match as the one most likely to provide a perfect match and maximum possible power transfer from transmitter to antenna system input. That episode is probably the final, so it might be informative to review some of the foundation basics of matching. These were rarely referred to during progress of the development.

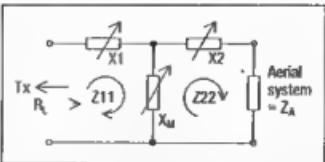
The purpose of a matching unit, transmatch, or aerial coupling unit (never an aerial tuning unit) is to enable the best power transfer between the transmitter and the aerial system input. The best might not be the maximum possible because of unit limitations.

Referring to Fig 1, a typical matching unit system consists of two circuits coupled by a reactance.

Circuit 1 connects to the transmitter output

Circuit 2 includes the complex impedance/admittance present at the input of the aerial system.

The coupling reactance can be a capacitance, an inductance, or, as in the Z match, the mutual inductance between coils.



Notes:

(i) X_1 and X_2 include transformer leakage inductance if a transformer is used. It also includes any shunt reactance.

(ii) A pi/T transform of a pi coupler will show the same conditions apply to that type of coupler.

(iii) The basic statement is

$R_L = Z_{11} \cdot (X_M)^2 / Z_{22}$.
 Z_{11} with circuit 2 open and Z_{22} with circuit 1 open.

If maximum possible power transfer and a perfect match is required, then:-

(a) The input must present to the transmitter a resistance equal to the design resistance (usually 50 Ohms).

(b) The output impedance/admittance must be a conjugate match of the aerial system input.

Those essentials can only be achieved by:-

(i) adjustable reactance in both circuits or,

(ii) adjustable reactance in circuit 1 or 2 and adjustable coupling reactance.

The 9/93 version nearly meets those requirements. It provides circuit 1 adjustment and limited coupling adjustment.

Adjustable reactance in circuit 1 or circuit 2 or the coupling can load the transmitter with unity power factor but not maximum possible power transfer

The VK3TO circuit provides three adjustments, circuit 1 and 2 and coupling. If I were to use this unit I would include the circuit 2 adjustment. It makes a perfect match much easier to achieve and there is no need for switched inductances, which appears to be the main object of the exercise.

To determine the maximum possible power transfer condition, a SWR measurement between transmitter and matching unit is not enough; it is also necessary to measure the power available at the aerial system input, which is not possible with the instruments available to most amateurs. The solution is to ensure that the matching unit provides the necessary two adjustments and preferably the third.

The basic principles are included in amateur texts, even the ARRL Handbook, but these are usually presented as unconnected facts. I hope the above provides the missing connections.

Lindsay Lawless VK3ANJ
Box 780
Lakes Entrance VIC 3909
ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

J T (Jack)	EVANS	VK2CX
J R F (Ray)	PETITH	VK2PH
A G (Alan)	EDGE	VK2TAE
P E (Peter)	LINDEN	VK3BX
A (Alan)	REDENBACH	VK3MCR
F (Frank)	PRESTIPINO	VK4NFP
E G (Eddy)	JENNINGS	VK5NEH
C J (Charles)	FRISBY	VK7CF

Peter Linden VK3BX

With deep regret we record the death of Peter Linden VK3BX who died in a tragic accident on May 14. He had just completed an installation at Alice Springs and went sight-seeing. While taking a photograph, Peter slipped, fell down a gorge, and was killed.

Peter Linden was first licensed in the 1950s and was primarily interested in HF. His home-brew gear was admired by fellow radio amateurs for its construction and immaculate appearance. Working

with AWA and STC he got excellent grounding on valve VHF radio, and later Motorola and Telstat.

At the time of his death he ran his own company called Long Distance Communications.

Peter Linden also found time to volunteer his services and knowledge to both WIA Victoria, and the Westernport Safety Council. He was the inaugural chairman of the WIA Victoria Repeater Committee. Peter established the first Melbourne VHF repeater VK3RML, originally on top of Housing Commission flats in inner suburban Carlton. He instigated the original planning with the Victoria Police for the WICEN repeater at Mt Macedon in Central Victoria. As foundation member of the Westernport Safety Council, Peter planned its vast communications system, now the biggest and most disciplined volunteer marine network in Australia. He was responsible for the original negotiation with the then

Postmaster General's Department to set up the 27.880 MHz inshore marine service.

Peter Linden VK3BX, a genuine, friendly and hardworking individual, will be sadly missed among the ranks of radio amateurs. On behalf of the WIA Victoria Council, and members, sincere condolences to his widow, Maggie, family, and close friends.

Peter Mill VK3ZPP

Bert David Clark VK4KU

It is with sadness that we announce the passing of Bert David Clark VK4KU at Pindara Hospital on Wednesday, 23 March, just short of his 78th birthday. He was cremated at Allambe, Nerang on Friday, 26 March.

Bert was born in Tasmania. In 1939 he enlisted in the AIF and saw service in Africa and the Pacific. After the war he joined the PMG in Tasmania and obtained his amateur licence with the call of VK7BC. He was transferred to the HF Monitoring station at the Melbourne suburb of Mont Park. His call became VK3KU. He then became OIC of the new location at Kilmore 60 km north of Melbourne. In 1969 Bert was put in charge of doing work for NASA and Bert and staff received an award of excellence from them.

On retirement in 1981, he headed to Lower Beechmont, a high spot in from Southport. His call became VK4BKU, and eventually VK4KU. He joined the Gold Coast Amateur Radio Society, the Southport RSL, the Rats of Tobruk Association, and Old Timers' clubs.

Bert is survived by his wife, Pegg, three sons and their wives plus six grandchildren.

Bill Harder VK4YAL

Alan Redenbach VK3MCN

The death is announced of Alan VK3CMR on Wednesday, 25 May at Gippsland Base Hospital.

Alan was well known on the various 80 metre nets and more recently on the local 2 metre repeater VK3RMM, as his beloved 2 metre set accompanied him on the increasing trips to the Repatriation Hospital. Alan was a man who enjoyed life and had a real sense of fun. He was also a man who thrived on a challenge, and never viewed his loss of sight as a handicap. Everything in his workshop had been modified by himself to conquer a difficulty that had been presented.

A more recent project was the construction of a six element 2 metre beam, and the finish and workmanship was outstanding in every detail.

Alan, while sadly missed by all, will not be forgotten because of the hope and determination he showed, and the infectious optimism he dealt out so freely.

Jeff Daly VK3MFR

Charles Frisby VK7CF

The North West Branch of the Tasmanian Division of the WIA was dealt a sad blow on 1 June 1994 when Charles VK7CF became a silent key.

Charles was known to many as "Seven Charlie Fox" and during his fifty years in

radio helped many in their effort to gain proficiency in Morse code, the mode he enjoyed immensely. He was born in Gympie, Queensland on 23 March 1907. As a nine year old he had experienced the loss of his mother and the loss of his foster parents of "in excess of eight years". At the age of 14 years he joined the Navy as a boy seaman and eventually reached the rank of leading signalman. In 1923, at the time of the police strike in Melbourne, he met his wife to be. They married at North Brighton on 4 June 1928.

He was called to escort Kingsford-Smith across the Tasman Sea during that historic flight and, as a result of his posting in Sydney, was one of the first people to walk across the new Sydney Harbour bridge. Charles was discharged from the Navy in 1932. He spent some time around Neerim, Romsey and Melbourne, before taking the post of signalman at Macquarie Heads on the west coast of Tasmania in 1940. That job involved maintenance of navigation lights around the general area.

He also served as a power station operator at Lake Margaret, then later as an electrician at Queenstown. From 1952 until 1977, when he retired, saw him serving as an electrician at the public hospital at Burnie.

He was a long time member of the WIA and a very active amateur radio operator. Charles VK7CF is QRT but we will remember him as a fellow amateur and a gentleman.

Clarrie Hilder VK7HCL

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC

At last, the list you for which you have been waiting!

Countries First Worked from Australia on 50-54 MHz

STATION	DATE	TIME	COUNTRY	CLAIMED BY	MODE	STATION	DATE	TIME	COUNTRY	CLAIMED BY	MODE
3D2SM	20/05/90	1112	Conway Reef	VK4FFX (VK4FP)	SSB	9L1US	08/10/90	0107	Sierra Leone	VK4BRG	SSB
3D2AG	23/03/92	2256	Rotuma Is	VK2QF	SSB	9M2DQ	26/09/99	0628	Malaysia	VK6BE	am
4S7AVR	29/03/89	0740	Sri Lanka	VK6KXW	SSB	9M8STA	13/08/89	1246	Eastern Malays-a	VK8ZLX	SSB
4X1F	25/10/81	1312	Israel	VK8AH	CW	9N1BMK	02/05/79	1100	Nepal	VK8GB	SSB
5B4AZ	25/10/89	1259	Cyprus	VK8AH	CW	9Q5EE	06/04/91	2348	Zaire	VK3OT	CW
5H1HK	04/04/89	0555	Tanzania	VK8AH	CW	9V1ES	17/11/89	1330	Singapore	VK8ZLX	SSB
5W1AU	05/04/82	0232	Western Samoa	VK4ZNC (VK4CV)	SSB	9Y4LL	10/04/82	2241	Trinidad	VK8GB	SSB
5Z4CS	28/03/82	1503	Kenya	VK8GB	SSB	A22B8	26/04/91	0730	Botswana	VK6JU	CW
6W1QC	12/11/90	0035	Senegal	VK4BRG	SSB	A35JT	10/04/83	2210	Tonga	VK4ZNC (VK4CV)	SSB
6Y5FS	24/03/90	2042	Jamaica	VK2BA	SSB	A45ZM	04/04/90	1159	Oman	VK8RH	CW
7Q7JA	27/03/91	0616	Malawi	VK6RO	CW	AH6A	19/04/81	2237	American Samoa	VK2VC (KH8)	SSB
8P6JW	18/04/89	0031	Barbados	VK2QF	SSB	BV2DQ	30/08/91	1312	Taiwan	VK8JQ	CW
8R1AH	02/04/89	0044	Guyana	VK8RH	SSB	BY5RA	28/09/84	1247	China	VK8GB	CW
9H1BT	25/03/89	1047	Malta	VK8RH	SSB	C21AA	20/12/70	0105	Nauru	VK4ZRW (VK4IT)	SSB
9K2ZR	03/04/92	0849	Kuwait	VK6JQ	CW	C6ANY	21/04/92	2240	Bahamas	VK2QF	CW

STATION	DATE	TIME	COUNTRY	CLAIMED BY	MODE	STATION	DATE	TIME	COUNTRY	CLAIMED BY	MODE
CE0DFL	24/04/90	0009	Easter Is	VK4ZJB	SSB	LX1SI	27/10/90	0946	Luxembourg	VK6JO	CW
CE3/KB6SL	10/10/90	0102	Chile	VK4BRG	SSB	QABABT	23/10/89	1330	Peru	VK8AH	SSB
CN8ST	20/10/91	1000	Morocco	VK8RH	SSB	0E5PAM	01/03/91	0917	Austria	VK6.Q	CW
C02KK	16/04/89	2200	Cuba	VK2BA	CW	OH1YP	25/02/89	0907	Finland	VK6KXW	SSB
CR9AJ	24/07/87	1305	Macao	VK8GB (DX9)	SSB	OK1DIG	29/01/91	1136	Czechoslovakia	VK6PA	SSB
CT1LN	03/03/90	1013	Portugal	VK4RO	SSB	ON7YD	28/10/90	1101	Belgium	VK6JO	CW
CU3/N6AMG	27/11/91	0923	Azores	VK2QF	CW	OZ8RW	19/10/90	0950	Denmark	VK8ZLX	SSB
CX4HS	16/04/92	1355	Uruguay	VK4FP	SSB	P29GR	27/12/74	2325	Papua N Guinea	VK4AAL	SSB
DL8+CZ	12/10/89	0902	Germany	VK8GF	SSB	P43AS	26/03/89	2130	Aruba	VK4KL	SSB
DG6/WB5LBJ	11/10/77	1250	Philippines	VK8GB	SSB	PA0RDY	12/10/89	0822	Netherlands	VK4ZJB	SSB
EAB/G3JVL	02/11/89	1255	Canary Is	VK8RH	SSB	PJ8JT	02/03/88	2134	Curacao/Bonaire	VK4PU	SSB
EI6AS	12/10/89	0850	Ireland	VK8ZLX	SSB	PY0FF	26/03/92	0243	Fernando/Morena	VK6PA	SSB
EK0JA	20/04/92	0344	Asia/ Russia	VK8ZLX (UA0)	SSB	PY5CC	20/04/91	2350	Brazil	VK7IK	CW
ES6QB	15/02/92	0957	Estonia	VK6PA	SSB	PZ1AP	30/03/89	0037	Suriname	VK4BRG	SSB
F9O	14/10/89	0905	France	VK8ZLX	SSB	S21ZE	12/10/92	1413	Bangladesh	VK8RH	CW
FK8AX	15/12/78	0929	New Caledonia	VK3AMK	SSB	SM6PU	25/02/89	0922	Sweden	VK6KXW	SSB
FM5WD	11/04/80	2247	Martinique	VK8ZLX	SSB	SV1DH	17/10/89	1335	Greece	VK8RH	SSB
FO0CI	13/03/92	0111	Clipperton I	VK4DDC	SSB	T3AZ	17/03/80	0855	West Kiribati	VK4R0 (T30)	SSB
FO8DR	12/04/81	2055	Fr Polynesia	VK2BA	CW	T20AR	15/12/87	1042	Tuvalu	VK2XJ	SSB
FW/W6JKV	23/03/90	2216	Wallis & Futuna	VK4ZJB	SSB	T32AB	15/03/82	2145	East Kiribati	VK2DDG (VK4DDG)	SSB
FY5AU	30/03/89	0138	French Guiana	VK4BRG	CW	T33JS	19/05/86	1033	Banaba Is	VK4BRG	SSB
G4FJK	20/03/89	0833	England	VK6KXW	SSB	T70A	20/01/91	0929	San Marino	VK6.Q	CW
GD3AHV	28/02/90	1005	Isle of Man	VK6HK	CW	TG9AWS	28/03/89	2328	Gatemala	VK2BA	SSB
GI4OPH	12/10/89	0905	Northern Ireland	VK8ZLX	SSB	T21NA	26/03/81	0222	Costa Rica	VK2DDG (VK4DDG)	SSB
GI4CD	12/10/89	0846	Jersey	VK4DDG	SSB	T20AR	03/04/91	2323	Central Africa	VK8JQ	CW
GM4GDT	28/02/90	1001	Scotland	VK6HK	CW	T21PC	19/04/89	2145	Belize	VK4ZAZ	SSB
GU2HML	01/11/89	0934	Guernsey	VK4JH	CW	V51E	25/04/91	0740	Namibia	VK6KXW	SSB
GW3LDH	12/10/89	0857	Wales	VK8ZLX	SSB	VE7AQO	06/04/95	0505	Canada	VK2ADE (VK4QM)	am
H4DXD	28/04/79	1222	Solomon Is	VK8GB	SSB	VK0AQ	19/11/93	1208	Antarctica	VK3OT	SSB
HB0AHB	13/10/91	0931	Liechtenstein	VK6PA	CW	VK0WW	10/12/72	0725	Macquarie Is	VK2NN	SSB
HB9JSV	03/01/92	0822	Switzerland	VK6PA	SSB	VK2BKE	05/01/75	0103	Lord Howe Is	VK3AMK (VK9L)	SSB
HC5K	28/03/89	0348	Ecuador	VK2MO	SSB	VK2WJ	20/01/47	1000	Australia	VK7NC	CW
HH7PV	19/09/89	2113	Haiti	VK2BA	SSB	VK9NT	01/06/58	0755	T New Guinea	VK4ZAZ	SSB
HI8WPC	02/04/89	2237	Dominican Repub.	VK2BA	SSB	VK9XK	29/11/51	0720	Papua	VK4BT	am
HK0/W6JKV	01/04/92	2352	San Andreas	VK2OF	CW	VK9XK	10/03/80	1305	Christmas Is	VK8GB	SSB
HK1JXV	19/03/90	0221	Colombia	VK4ZNC (VK4CV)	SSB	VK92M	13/01/89	0438	Mellish Reef	VK2SA	SSB
HL9WI	04/09/89	2307	South Korea	VK4ZAZ	am	VK92M	22/11/78	0925	Wil . Is	VK2BNN (SK)	SSB
HP3XUH	25/01/89	2021	Panama	VK4ZNC (VK4CV)	SSB	VK9ZNG	27/11/75	1325	Norfolk Is	VK2ZRU	SSB
HS0B	10/11/91	0338	Thailand	VK3OT	CW	VK9ZYX	22/11/81	1301	Cocos-Keeling Is	VK8GB (VK9C)	SSB
I4ICL	15/02/91	1015	Italy	VK4FP	SSB	VP1MT	13/04/79	1020	Honduras	VK5RO (HR1)	SSB
ISO4GY	10/11/89	0938	Sardinia	VK4FP	SSB	VP2MO	01/04/89	2226	Montserrat	VK2BA	SSB
J73PD	03/04/89	2116	Dominica	VK4KJL	SSB	VP2VGR	17/03/81	2301	Br Virgin Is	VK3OT	CW
J4A1HS	22/01/58		Japan	VK4NG (SK)	SSB	VP5D	25/03/89	2145	Turks/Caicos Is	VK2OF	SSB
JD1ADP	05/05/79	1215	Ogasawara	VK8GB	SSB	VR2BC	18/12/49	0638	Fiji	VK2AH (3D2)	am
JD1YAA	31/03/84	0832	Minami Torishima	VK8GB	SSB	VR6UJ	13/03/93	0605	Pitcairn Is	VK4BRG	CW
JT1CO	28/09/91	0837	Mongolia	VK6HK	SSB	VSDQD	19/04/58		Malaya	VK6ZAV	am
KA2CW	12/03/86	0705	Japan/US forces	VK4PU	am	VSD5X	26/11/80	1335	Brunei	VK8GB (VK85)	SSB
KC8IN	23/03/80	1215	East Caroline Is	VK8GB (V63)	SSB	V86HK	05/05/78	0839	Hong Kong	VK4RD	SSB
KG8SZ	14/10/79	1247	Yap - W Car Is	VK4JH	CW	VU2JPN	17/03/81	1326	India	VK8GB	SSB
KG4SM	25/03/89	2148	Guantanamo Bay	VK2OF	SSB	W6PUZ	14/03/58		JSA	VK4HD (SK)	SSB
KG6/K7HIX	22/03/69	2320	Guam	VK4ZAZ (KH2)	am	XE1FU	01/05/59	0030	Mexico	VK3A_Z	am
KG6R0	24/07/87	1158	Samoa/Mamana	VK8GB (KH10)	SSB	X4L	14/04/89	2140	Revilla Gigedo	VK2QF	SSB
KH1/VK9NL	03/04/88	0150	Howland Is	VK4TL	CW	XU0UN	23/02/93	1356	Cambodia	VK8AH	SSB
KH3AB	28/03/81	1040	Johnston Is	VK8GB	SSB	YB0X	01/05/79	0635	Indonesia	VK4RD	SSB
KH4AE	28/02/91	0715	Midway Is	VK4BRG	SSB	YJ80M	01/11/76	0017	Vanuatu	VK4ZSH	SSB
KH5/W6HTH	17/01/88	0040	Palmyra/Jarvis	VK5R0	SSB	Y07VJ	21/10/91	0812	Romania	VK8RH	SSB
KH6/W7AC5	26/08/47	0310	Hawaii	VK5KL	am	YS1ECB	06/04/84	0134	El Salvador	VK2DDG (VK4DDG)	SSB
KH7/KH6EJ5	23/03/90	0644	Kure Is	VK4ZNC (VK4CV)	SSB	YU3GO	12/10/91	1010	Slovenia	VK6JO	CW
KL7/W4ATV	13/03/79	0302	Alaska	VK4PU	SSB	YU3EA	03/03/91	1006	Yugoslavia	VK6JO	CW
KP2A	26/03/89	2237	Virgin Is	VK3OT	SSB	YV5DL3ZM	18/03/81	2147	Venezuela	VK4RD	CW
KP4AN	13/04/81	2130	Puerto Rico	VK2DDG	SSB	ZAIJZ	27/10/91	0743	Albania	VK6JQ	CW
KR6AK	05/04/59	1205	Okinawa	VK4ZAZ	am	ZB0T	22/10/91	1001	G bratia	VK8RH	SSB
KX6AF	20/03/58		Marshall Is	VK4NG (SK)	SSB	ZC4MK	31/10/90	0902	Sov/Bases Cyprus	VK6RO	CW
KZ5NW	04/03/79	2318	Canal Zone	VK4RO	CW	ZD7BW	21/03/81	0051	H st Helena	VK4TL	CW
LA3EQ	25/02/89	0811	Norway	VK6WD	SSB	ZD8TC	20/03/82	0037	Ascension Is	VK4RD	CW
LU8OB	28/04/58		Argentina	VK4NG (SK)	SSB	ZF2DN	28/03/81	2112	Cayman Is	VK2BA	CW

STATION	DATE	TIME	COUNTRY	CLAIMED BY	MODE	STATION	DATE	TIME	COUNTRY	CLAIMED BY	MODE
ZK1W	28/03/89	2158	North Cook Is	VK2OF	CW	ZL9TPY	21/01/90	2304	Auckland Is	VK2VC	SSB
ZK1WZ	28/03/89	2232	South Cook Is	VK4ZAZ	SSB	ZM8OY	10/12/85	2158	Kermadec Is	VK4PU (ZL8)	SSB
ZK2RS	29/12/82	0231	Niue	VK2BA	SSB	ZP6XDW	28/04/91	2257	Paraguay	VK4BRG	CW
ZK3KY	13/1/90	2347	Tokeia	VK4BRG	SSB	ZS6LN	18/05/81	0831	South Africa	VK6WD	CW
ZL2MF	21/1/24/87	0750	New Zealand	VK5GF (SK)	am	ZS9H	25/04/91	0808	Walvis Bay	VK6KXW	SSB
ZL4CYC	19/06/83	0349	Chatham Is	VK2BA (ZL7)	SSB						

The above list represents 173 countries which have been worked from Australia on 50-54 MHz. The four megahertz span is emphasised because up to 1963 Australian amateurs had the use of 50-54 MHz then, for the next 25 years, 52-54 MHz after which we were again allowed the use of 50 MHz. Australia is the only place in the world to have worked a seventh continent, Antarctica, on six metres.

During my research I found a number of amateurs had, in fact, made contacts as early as 1936 when using the band known as Five Metres (56-60 MHz) (These have not been included as they may be the subject of a separate article in due course). The use of that band continued until the outbreak of World War II in 1939 and for a short period after the end of the war until we were granted the use of 50-54 MHz.

In presenting the above list there are a number of points which you should keep in mind.

1. The list is as accurate as I can make it given the information presented to me. It is inevitable that there will be the odd error. If so, I regret such an occurrence but, after all, I am only human! I also know of several more countries which have been worked by amateurs who have decided to be included. The list spans a period of about 47 years and some of the early operators are now silent keys (SK) so we do not have access to their logs.

2. It is inevitable that, as a result of publishing this list, someone will turn up an earlier entry. Preliminary lists were published three times requesting amendments; those which came were duly noted. As I have spent many months and considerable expenditure preparing the list I don't propose entering into correspondence or discussions on what might be changed in the list. What is presented is it. Finish!

3. In a number of instances only a minute or two have separated operators working the same station. With the publication of a call sign I do not think that it should be seen as a "personal glory" to have been the first to work a station or country. In many cases it was your good luck. What is important is that the country was worked and, if by more than one operator around a particular time, as was usually the case, then that makes good

insurance for the working of a country. However, someone has to be first!

4. I found that a QSL card endorsed "First VK station to be worked from" was not always reliable. It may well have been that particular operator's first working of a VK station but the risk always remained that another station, unknown to him at the time, may have done so earlier, sometimes by many days. I was forced into making the best decision in such circumstances.

5. I have a mountain of information at my disposal so, where necessary, I have referred to QSL cards to verify dates and times. I have also consulted overseas lists and operators to ensure the highest degree of accuracy and it has been to my satisfaction to see that claims made here have also appeared in comparable lists from other countries.

6. The list is in accordance with the ARRL DXCC Countries List. Where deleted prefixes are included the present prefix is included in brackets after the working station's call sign. Those countries/areas entering the six metre scene in later years are not faced with the problems of deleted countries. The names of the countries have been included to differentiate between areas, eg 3D2 can be Fiji, Conway Reef, Rotuma Island etc, all three of which are included in this list.

7. New Guinea proved to be a problem area but I was eventually able to get it right. The details were the subject of a paragraph in my notes in a previous issue of *Amateur Radio*. Simply stated, the dates in the ARRL DXCC List are not correct!

Summing up, I congratulate the Australian amateurs for their dedication and perseverance when making difficult contacts. Many of those made did not come easily, particularly at distances of 15,000 km and beyond. I think we can be pleased with our tally of 173 countries. We are not ideally situated geographically for contacts into many areas of the northern hemisphere but we do have an advantage when it comes to the Pacific Ocean island nations, most of which we have worked, so I suppose it does average out.

Difficult areas have always been Africa and South America but we seem to have a representative sample from each

continent. The fact that Australia is a large country (4000 km wide) means that sometimes contacts were made to certain countries only from the eastern or western areas of our country, not from both parts, so at times this has been to our overall advantage but not necessarily so to any one operator. This can be seen by the large number of northern hemisphere operators who have attained DXCC but Australia has one only, VK3OT.

Six metres

Ron Seager VK4ZJR from Cairns sends a list for inclusion in the Standings List and comments that six metres has been relatively quiet except for JA openings most days between 0900-1030. KH6 beacons are often heard between 0400-0840 but despite strong signals there are no answers to calls. Occasionally the band opens south to Brisbane and VK2.

Can anyone assist Ron with a QSL route for FO8QT, YU3ZU, BT4YHY, JH6VAS/KH3 and VR6J?

Nev VK2QF worked sixteen JAs on 9/4 around 0630.

R Elma VK3CN will shortly return to the Philippines and, in addition to HF operating, would like to be active on six metres. We look forward to hearing from him when such operation is possible.

Gill VK3AUI sent a copy of a list from the Japanese CQ Ham Radio which gives prefixes worked in Japan from 1978 to 1993 with the times of day that the openings occurred. This in itself is interesting. The greatest number of countries were in Oceania followed by Asia, followed by Africa, South America, North America and Europe in that order. It is unfortunate that the list appears incomplete as it represents about 105 countries when some of the top JA operators have around 140 countries to their credit. The list gives some idea of the spread of contacts:

3D, 3D2, 4S, 4S, 5B, 5H, 5N, 5R, 5W, 5Z4, 6W, 7J1, 7P, 7Q, 8Q, 9H, 9K, 9L, 9N, 9Q, 9Y4, A2, A3, A45, BV, CE, CEOA, CP, CT, CX, DU, EA8, EL, F, FK, FM7, FO, FOOC, FR, H4, HL, HP, HS, I, JA, JD1, JD1M, JD10, KC6, KH0, KH2, KH3, KH5J, KH6, KH8, KH9, KP2, KP4, LU, OA, P2, PY, PY0F, S0A, S7, SV, T2, T30, T32, TI, TR8, UA0, V6, V7, V8, VE, VK,

VK0, VK9N, VK9W, VK9X, VK9Y, VP2M, VP2V, VQ9, VR6, VS6, W, XE, XQ0X, XU, XX9, YB, YJ, YN, YU3, Z2, ZD8, ZK1-N, ZK1-S, ZK2, ZL, ZL0, ZL7, ZL8, ZP, ZS

Europe

Geoff GJ4ICD from Jersey reports excellent Es conditions during May. On 14/5 ST5JC in Mauritania worked most of the UK and Europe and OD5SK in Lebanon had openings to OH, PA, YU, SS, ES and others. 16/5 was the big day with Es on both 50 and 144 MHz. On 50 MHz prefixes worked included 5B4, OD5, SV, DL, OK, YU, C31, EH, 5T5, F, I, IT9, Z32, SP, OZ, SM, YO, TK, OE, OM, 9H plus others amongst the chaos. On 17/5 CN8ST worked the US and Z32BU continued to give operators a new prefix. On this occasion the opening extended down to 7077RM at 5x9. Geoff heard the FY7 beacon at 1820 at the same time as EA8/DJ3OS heard the VO1 beacon in

Canada. Following on from our good Es season last summer, it appears that the northern hemisphere is about to enjoy a good period of Es.

A new beacon is JY6ZZ on 50.075 MHz with a power output of eight watts. It is operated by the Royal Jordanian Amateur Radio Society, was built by Lawrence GJ3RAX and Geoff GJ4ICD and delivered personally to the Jordanian club by Geoff. That's dedication for you! Their next beacon project is one signing BR1SMC and located at Guyana in South America. They are also investigating the installation of a beacon, D44SIX, in the Cape Verde Islands in the Atlantic. Their Malaysian beacon 9M6SMC went to air in April/May.

1000 QSOs on Oscar

The Geelong Amateur Radio Club Newsletter for May reports that Arch VK3BW recently achieved the amazing feat of working 1000 stations on amateur

satellites (OSCARs). Arch's long and illustrious pursuit of the hobby of radio communication began in the 1930s when he broadcast music to interested listeners prior to the establishment of commercial radio stations. His broadcasts were heard as far away as New Zealand.

Closure

This month's closure was not as fast as that of last month but all is OK again.

Closing with two thoughts for the month:

1. Love is not measured by how many times you touch each other but by how many times you reach each other, and
2. Nothing lowers the level of conversation more than raising the voice.

73 from The Voice by the Lake.

*PO Box 189, Menninga, South Australia 5264
Fax: 085 751 043. Packet to VK5ZK for VK5LP

■■■

QSP News

Anonymous Agitator

Many members will have seen an item in the May issue of *Electronics Australia* (in its "Forum" section on page 38). It was a letter from an unidentified member of the NSW Division of the WIA and expressed highly critical views on amateur radio in general, the WIA and the NSW Division in particular.

The WIA cannot allow such derogatory remarks to pass without comment. The following letter, to clarify the WIA position, was sent by the Federal President to the Editor of *Electronics Australia*.

Dear Sir,

The WIA notes with considerable concern your comments in the "Forum" section of the May 1994 issue of "Electronics Australia".

You saw fit to publish a letter from an unidentified longstanding member of the New South Wales Division of the WIA, who shows by his comments that he fails to understand the structure and function of the WIA. He also argues that, since there has been a problem in one Division, the whole body is senescent. The WIA disputes this.

The WIA enjoys considerable

standing both nationally and internationally. It is represented on advisory committees of the International Telecommunications Union (the world regulatory body) and supplies a Director to the International Amateur Radio Union. The WIA is also represented on the Radio Communications Consultative Council and Standards Australia committees.

WIA delegates have attended all post-war WARCs and all IARU Regional Conferences. The 10, 18 and 24 MHz bands were gained for the amateurs as a direct result of such participation.

From negotiation between the WIA and the (then) DoTC, Australian amateurs gained the original Novice licence and its subsequent extensions of privileges, a considerable level of deregulation and an examinations service geared to the needs of the candidates. Other WIA initiatives have resulted in avoidance of import duty on amateur transmitting equipment. Ongoing negotiations between the WIA and SMA will further deregulate the amateur service, increase privileges for Novices and Combined licensees and create a new licence entry level.

The future of amateur radio need not be as bleak as your correspondent claims. While commercial interests are indeed providing vastly improved services, no modern technology can replace the amateur's ability to call "CQ" and receive a reply from a like-minded enthusiast on the other side of the world, free of charge and in an international language. The amateur service has a unique ability to contribute to international goodwill and understanding between diverse peoples. If for no other reason, the WIA must continue its effort to maintain and extend privileges for all amateurs. It can only succeed if it has the support of the whole amateur population.

I appeal to your readers who are interested in the activities and functions of the WIA to seek the information from the appropriate source, their State Division or the Federal body of the WIA, rather than from biased comments from a disenchanted but anonymous correspondent to a commercial magazine.

Yours faithfully,

Neil Penfold VK6NE
Federal President

What's New

Bob Tait VK3UJ

MFJ-219 UHF SWR Analyser



The MFJ-219 lets you read the SWR of any antenna from 420 to 450 MHz by just plugging in the coax from your antenna, setting the frequency and reading the SWR; it's that simple.

Because the MFJ-219 is portable you can take it right to the antenna feed point where it matters.

The MFJ-219 uses the latest high tech microwave ICs and stripline technology to produce an affordable analyser that really works.

For further information contact DAYCOM on (03) 543 6444.

MFJ-8100K Sheriwave Regenerative Receiver Kit. AM, SSB, CW, RTTY



Have you ever wished that you could relive some of those moments as a youth, when you strained to hear those rare DX stations. Well you can with the MFJ8100 which can be built in an evening and give you and your friends many hours of fun. It has an RF stage to pull out the weak ones, and the regeneration control operates smoothly with no clicks, pops or dead spots.

The receiver operates from 75 metres to 13 metres in 5 bands, and incorporates a vernier tuning control for easy tuning, a band switch, a regeneration control and a volume control.

The cabinet is brushed aluminium

which is screen printed and is easy to read, measuring 178 x 152 x 64 mm. Plug in one or two sets of earphones and share with your friends.

For further information contact DAYCOM on (03) 543 6444.

MFJ-105B 24 hour Quartz Wall Clock



The MFJ-105B is a true 24 hour clock featuring a very accurate quartz movement.

The face is 250 mm in diameter with well defined lettering for easy reading from across your shack or computer room. It is powered by a single AA battery (not included) to give over a year's operation.

For further information contact DAYCOM on (03) 543 6444.

ICOM VOX UNIT EX-1514

The ICOM EX-1514 allows any ICOM mobile or base station, with a standard 8 pin microphone connector, to incorporate VOX operation. Connect the EX-1514 between the microphone and the rig, turn the power on, adjust the controls and you're away.

The unit has 3 preset delay times, selectable from the rear panel, of 0.5, 1.0 and 2.0 secs. The unit is powered by the mic socket (8 V DC at 35 mA) so there are no additional cables to connect. Sensitivity is at least 2 mW at 1 kHz. The unit measures 100 x 26 x 97 mm, weighs just 300 g and is priced at \$175.20.

For further information contact ICOM at 7 Duke St, Windsor, Victoria or on (03) 529 7582 Fax (03) 529 8485.

ICOM IC-2700H High Power Dual Band FM Transceiver



Watch for a comprehensive review of this new Transceiver in Amateur Radio soon. Many mobile transceivers are

confusing to use, but the IC-2700H solves this problem by providing two sets of controls. Separate LCD displays for each band provide instant information at a glance with 4 levels of back lighting.

The unit has a detachable front panel to allow boot mounting of the unit if required. The DTMF microphone supplied provides access to all the transceiver's functions, or use the optional HM-90A remote wireless microphone which also provides full functions via an infra-red link. You can even operate from the back seat.

Transmitted frequencies are automatically entered in scratch pad memories for instant recall. Each band has 6 scratch pads, 3 for duplex, 3 for simplex. A total of 100 memories is available to assign as you please, which can be split between VHF or UHF. Power output is selectable at 50, 10, and 5 watts on VHF and 35, 10, and 5 watts on UHF.

The price of this unit is \$1781.20 and it should be available this month.

For further information contact ICOM at 7 Duke St, Windsor, Victoria or on (03) 529 7582 Fax (03) 529 8485.

ICOM IC-820H Dual Mode VHF/UHF Transceiver



The IC-820H is about half the size of the IC-970H, but don't let the size fool you. This latest unit is packed full of features including a DDS (direct dial synthesiser) capable of resolving 1 Hz tuning steps for super fine tuning. Features include normal and reverse tracking, independent uplink/downlink control for Doppler shift compensation, separate satellite VFO and 10 satellite memories. Satellite operation has never been easier.

The transceiver provides simultaneous reception of both bands, separate "S" meters, exchangeable main or sub bands a press of a switch away, and two VFOs on VHF/UHF.

Additional features include, 9600 baud packet operation, an AF speech compressor, one touch repeater operation, CW semi break-in and side tone, and IF shift control.

The IC-820H will be available in late May at a cost of \$7457.99

For further information contact ICOM at 7 Duke St, Windsor, Victoria or on (03) 529 7582 Fax (03) 529 8485.

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column, the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μ V (dBu) at the MUF; the fourth column the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μ V in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μ V at the receiver's input and the S-meter scale is 6 dB per S-point.

V in 50 ohms	S-points	dB(μ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 263. The predicted value for August is 239.

VK EAST — SOUTH PACIFIC

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 20.5	8	15.5	1	7	10	8	6	0
2 20.5	9	15.5	1	7	10	8	1	-7
3 19.6	13	15.6	15	15	11	3	-3	-7
4 17.7	17	14.1	21	16	9	-1	-7	-22
5 16.5	22	13.1	26	17	17	-1	-7	-22
6 15.6	24	12.6	28	16	16	5	-11	-28
7 14.8	26	11.6	28	12	-1	-20	-	-
8 13.3	25	10.1	21	3	-13	-37	-	-
9 11.6	27	8.8	15	-15	-15	-39	-	-
10 10.7	26	8.0	10	-15	-15	-39	-	-
11 10.2	26	7.7	7	-20	-	-	-	-
12 9.7	27	7.3	4	-25	-	-	-	-
13 9.4	27	7.0	1	-29	-	-	-	-
14 8.9	20	5.9	-1	-27	-	-	-	-
15 9.1	12	7.0	0	-23	-	-	-	-
16 8.7	3	6.6	-3	-24	-	-	-	-
17 7.5	-4	5.8	-7	-29	-	-	-	-
18 7.5	-16	5.0	-14	-44	-	-	-	-
19 7.2	-16	4.7	-11	-24	-	-	-	-
20 13.9	-1	10.8	-1	-11	-7	-19	-34	-
21 17.3	2	13.3	-2	-20	0	-18	-	-
22 19.0	3	14.6	-4	3	2	-3	-12	-
23 19.7	4	15.0	-3	4	3	-2	-10	-
24 20.1	5	15.2	-2	5	4	-1	-	-

VK WEST — SOUTH PACIFIC

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 17.6	12	13.3	15	11	3	-9	-25	-
2 18.4	12	13.9	16	15	6	-5	-25	-
3 19.0	12	14.3	17	14	7	-4	-18	-
4 18.1	13	14.3	19	15	7	-4	-18	-
5 19.0	14	14.2	22	16	8	4	-11	-
6 17.3	17	13.1	24	15	4	-11	-	-
7 15.0	21	11.3	24	15	5	-5	-25	-
8 13.0	25	9.8	20	0	-17	-	-	-
9 11.6	25	8.5	15	-15	-15	-33	-	-
10 9.9	20	4.4	8	-23	-	-	-	-
11 9.2	32	6.9	1	-31	-	-	-	-
12 8.8	32	6.5	-2	-37	-	-	-	-
13 8.7	32	6.4	-4	-36	-	-	-	-
14 8.5	32	6.3	-5	-35	-	-	-	-
15 8.5	32	6.3	-5	-35	-	-	-	-
16 7.7	34	5.9	-13	-	-	-	-	-
17 7.7	34	5.9	-13	-	-	-	-	-
18 7.7	34	5.9	-13	-	-	-	-	-
19 7.9	31	6.1	11	-	-	-	-	-
20 8.1	28	6.2	-9	-	-	-	-	-
21 8.5	28	7.0	18	-	-	-	-	-
22 12.9	28	8.0	11	-25	-	-	-	-
23 14.7	14	11.3	15	5	-7	-24	-	-
24 16.6	24	12.6	15	9	0	-14	-31	-

VK EAST — AFRICA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 11.5	11.4	7	-34	-	-	-	-	-
2 7.1	8.6	-11	-38	-	-	-	-	-
3 7.1	-6.5	-10	-34	-	-	-	-	-
4 9.7	7.6	0	-14	-31	-	-	-	-
5 13.9	6.0	10.7	5	-16	-	-	-	-
6 11.1	6.0	8	-16	-20	-	-	-	-
7 15.5	11.6	8	-16	-20	-	-	-	-
8 13.7	10.3	8	-16	-20	-	-	-	-
9 11.7	5.8	7	-16	-20	-	-	-	-
10 10.0	4.7	5	-16	-20	-	-	-	-
11 8.7	6.5	5	-16	-20	-	-	-	-
12 8.2	6.5	5	-16	-20	-	-	-	-
13 8.0	5	4	-20	-	-	-	-	-
14 7.9	24	5.8	-10	-	-	-	-	-
15 7.9	27	5.8	-11	-	-	-	-	-
16 7.9	27	5.8	-11	-	-	-	-	-
17 7.6	30	5.8	-16	-	-	-	-	-
18 7.6	30	5.7	-17	-	-	-	-	-
19 7.6	30	5.7	-17	-	-	-	-	-
20 7.6	30	5.7	-17	-	-	-	-	-
21 7.5	30	5.6	-16	-	-	-	-	-
22 7.4	30	5.7	-18	-	-	-	-	-
23 7.0	23	5.6	-21	-	-	-	-	-
24 7.2	15	5.7	-16	-	-	-	-	-

VK SOUTH — AFRICA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 16.2	8	12.3	9	-15	-31	-	-	-
2 16.9	8	12.7	9	-15	-28	-	-	-
3 17.2	8	12.9	9	-15	-23	-	-	-
4 17.2	9	13.0	10	8	-9	-24	-	-
5 17.2	10	13.0	10	8	-2	-9	-24	-
6 16.7	10	12.6	12	8	-12	-26	-	-
7 16.5	11	11.7	13	6	-4	-20	-39	-
8 13.7	14	10.4	13	6	-15	-36	-	-
9 11.8	5.9	5.9	-2	-34	-	-	-	-
10 11.1	22	6.6	-2	-34	-	-	-	-
11 8.8	23	6.7	-17	-	-	-	-	-
12 8.3	25	6.2	-26	-	-	-	-	-
13 8.1	26	6.1	-29	-	-	-	-	-
14 7.9	26	5.9	-32	-	-	-	-	-
15 7.8	26	5.9	-32	-	-	-	-	-
16 7.8	26	5.9	-32	-	-	-	-	-
17 8.0	26	6.0	-31	-	-	-	-	-
18 7.7	26	5.9	-36	-	-	-	-	-
19 7.1	26	5.5	-	-	-	-	-	-
20 7.0	26	5.4	-	-	-	-	-	-
21 6.9	27	5.4	-29	-	-	-	-	-
22 11.4	12	8.8	-4	-37	-	-	-	-
23 13.8	10	10.6	9	-18	-33	-	-	-
24 15.4	9	11.8	10	4	-5	-20	-36	-

VK WEST — ASIA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 19.0	13	14.6	17	14	8	-3	-15	-
2 19.0	13	14.6	17	14	8	-3	-15	-
3 19.6	12	15.0	14	14	9	0	-1	-15
4 20.2	12	15.5	14	14	10	1	-14	-
5 20.2	12	15.4	15	15	10	1	-14	-
6 20.3	12	15.5	16	11	12	2	-9	-
7 20.2	12	15.4	16	11	12	2	-9	-
8 19.2	14	15.4	18	17	11	2	-7	-
9 19.2	14	15.3	19	17	11	2	-7	-
10 15.4	19	11.5	23	9	8	-6	-28	-
11 13.4	21	10.2	17	-	-	-	-	-
12 11.7	22	8.9	8	18	-	-	-	-
13 10.6	23	7.5	-32	-	-	-	-	-
14 10.2	23	7.5	-32	-	-	-	-	-
15 9.8	25	7.4	-1	-	-	-	-	-
16 9.4	25	7.0	-14	-	-	-	-	-
17 9.3	25	7.0	-14	-	-	-	-	-
18 9.4	25	7.2	12	-	-	-	-	-
19 8.8	25	6.7	-21	-	-	-	-	-
20 7.5	26	5.8	-	-	-	-	-	-
21 7.5	26	5.8	-	-	-	-	-	-
22 10.0	26	5.9	5	39	-	-	-	-
23 14.1	13	10.9	15.0	18	-12	3	-10	-26

VK EAST — EUROPE

LTO	MUF	dbU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.6	5	7.6	2	15	-35	1	10.9	
2	10.6	-10	7.6	0	4	13	29	2	10.8
3	11.5	9	8.3	-1	2	8	-22	3	11.8
4	13.2	6	9.3	3	0	-4	-14	4	13.8
5	15.0	2	11.0	-5	1	1	8	5	15.9
6	16.2	0	12.0	0	0	-5	6	16.2	
7	17.9	1	12.2	4	2	1	-2	7	17.8
8	16.9	3	12.4	-1	2	1	4	8	16.5
9	15.0	2	11.4	1	2	-3	-13	9	14.5
10	13.0	2	9.9	3	0	0	-23	10	12.4
11	11.4	3	8.8	-30	4	-5	-17	11	10.5
12	10.5	2	7.9	17	5	-10	-25	12	7.5
13	10.0	0	7.8	4	-5	-14	-28	13	8.8
14	9.6	12	7.2	4	1	-19	-21	14	8.5
15	9.2	16	6.9	13	0	-25	-21	15	8.4
16	9.1	20	6.9	21	-1	-28	-21	16	8.4
17	9.2	24	7.0	28	0	-30	-21	17	8.5
18	8.5	27	6.5	31	-	-	-17	18	8.5
19	8.2	31	6.3	31	-	-	-17	19	8.5
20	7.4	23	5.7	31	-	-	-17	20	7.8
21	9.7	28	7.4	36	4	-25	-21	21	7.9
22	10.0	26	7.6	24	7	-15	-38	22	9.2
23	11.7	13	8.3	-6	10	-14	-34	23	8.7
24	11.0	3	7.8	-29	5	-4	-16	24	11.5

VK SOUTH — EUROPE

LTO	MUF	dbU	FOT	7.1	14.2	18.1	21.2	24.9		
1	13.0	15	8.8	-2	14	5	-21	1	12.3	
2	12.1	17	8.2	2	14	-10	-29	2	12.9	
3	13.8	17	7.5	1	15	-10	-37	3	13.9	
4	12.8	24	7.5	15	4	-21	-27	4	10.8	
5	10.8	23	7.5	25	13	-4	-21	5	10.5	
6	11.8	24	8.2	28	17	1	-14	6	11.5	
7	11.7	22	8.8	24	15	-1	-17	7	11.5	
8	10.3	16	7.9	10	7	-9	-27	8	8.9	
9	8.8	20	6.5	10	-10	-39	-9	9	8.7	
10	7.1	14	5.5	19	-12	-34	-17	10	8.0	
11	8.4	6.2	23	-1	-14	-29	-21	11	7.8	
12	8.3	14	5.1	-30	-1	-11	-26	12	7.7	
13	8.3	23	6.2	-3	-13	-26	-21	13	7.7	
14	8.3	34	6.1	-8	-17	-30	-21	14	7.7	
15	8.4	6.2	12	-20	-20	-32	-17	15	7.8	
16	7.7	5.8	12	-24	-34	-36	-17	16	7.7	
17	7.6	6.0	21	-21	-30	-30	-17	17	7.2	
18	7.6	23	6.6	-21	-30	-30	-21	18	7.4	
19	9.1	23	6.6	-4	-9	-20	-37	19	8.5	
20	11.7	-6	9.0	-	0	-9	-20	20	10.5	
21	11.7	-6	8.8	-	1	-4	-15	21	9.1	
22	11.5	9	8.4	-	1	-4	-15	22	10.4	
23	14.8	12	10.1	-22	19	8	1	-19	23	12.6
24	13.6	14	9.4	-10	14	7	-2	-16	24	13.1

VK WEST — EUROPE

LTO	MUF	dbU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.6	5	7.6	6	7.6	20	6	-18	
2	11.4	1	7.6	1	7	29	2	-4	
3	11.5	-1	7.6	2	8	29	3	-23	
4	13.2	2	8.3	4	13.8	2	-13	4	14.3
5	15.0	2	9.3	3	10.3	2	-13	5	15.9
6	16.2	1	10.3	2	12.3	2	-13	6	16.5
7	17.9	1	12.4	1	12.4	2	-13	7	17.8
8	16.9	3	12.4	1	12.4	2	-13	8	16.8
9	15.0	2	11.4	1	10.9	2	-13	9	14.5
10	13.0	2	9.9	1	10.9	2	-13	10	10.5
11	11.4	3	8.8	1	10.5	2	-13	11	9.8
12	10.5	2	7.9	1	10.5	2	-13	12	7.5
13	10.0	0	7.8	1	10.5	2	-13	13	8.8
14	9.6	12	7.2	1	10.5	2	-13	14	8.5
15	9.2	16	6.9	1	10.5	2	-13	15	8.4
16	9.1	20	6.9	1	10.5	2	-13	16	8.4
17	9.2	24	7.0	1	10.5	2	-13	17	8.5
18	8.5	27	6.5	1	10.5	2	-13	18	8.5
19	8.2	31	6.3	1	10.5	2	-13	19	8.5
20	7.4	23	5.7	1	10.5	2	-13	20	7.8
21	9.7	28	7.4	3	10.5	2	-13	21	7.9
22	10.0	26	7.6	3	10.5	2	-13	22	8.0
23	11.7	13	8.3	-6	10	0	-14	23	8.7
24	11.0	3	7.8	-29	5	-4	-16	24	9.1

VK EAST — EUROPE (Long Path)

LTO	MUF	dbU	FOT	7.1	14.2	18.1	21.2	24.9	
1	13.0	15	8.8	-2	14	5	-21	1	12.3
2	12.1	17	8.2	2	14	-10	-37	2	12.9
3	13.8	17	7.5	1	15	-10	-37	3	13.9
4	12.8	24	7.5	15	4	-21	-27	4	10.8
5	10.8	23	7.5	25	13	-4	-21	5	10.5
6	11.8	24	8.2	28	17	1	-14	6	11.5
7	11.7	22	8.8	24	15	-1	-17	7	11.5
8	10.3	16	7.9	10	7	-9	-27	8	8.9
9	8.8	20	6.5	10	-10	-39	-9	9	8.7
10	7.1	14	5.5	19	-12	-34	-17	10	8.0
11	8.4	6.2	23	-1	-14	-29	-21	11	7.8
12	8.3	14	5.1	-30	-1	-11	-26	12	7.7
13	8.3	23	6.2	-3	-13	-26	-21	13	7.7
14	8.3	34	6.1	-8	-17	-30	-21	14	7.7
15	8.4	6.2	12	-20	-20	-32	-17	15	7.8
16	7.7	20	6.2	-20	-20	-32	-17	16	7.8
17	7.6	26	7.2	-22	-22	-34	-17	17	7.8
18	7.6	32	7.2	-24	-24	-34	-17	18	7.8
19	7.9	30	8.0	-12	-	-	-17	19	8.5
20	7.9	30	8.1	-12	-	-	-17	20	8.0
21	10.1	28	7.5	-20	-	-	-17	21	7.3
22	9.4	27	7.3	-24	-	-	-17	22	7.3
23	9.0	17	8.8	0	-15	-	-17	23	7.4
24	12.5	13	8.8	11	-12	-31	-17	24	11.8

VK SOUTH — EUROPE (Long Path)

LTO	MUF	dbU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.2	11	8.5	8	-20	-3	-20	1	11.2
2	11.8	3	8.8	4	-3	-15	-23	2	11.8
3	14.8	3	11.7	4	-11	-23	-27	3	12.8
4	18.8	4	11.7	3	-1	-23	-27	4	10.3
5	14.8	5	14.3	0	-7	-15	-24	5	10.4
6	15.2	5	14.3	4	-4	-15	-24	6	11.3
7	18.4	3	13.8	-3	-11	-24	-19	7	12.8
8	16.9	3	12.7	0	-9	-18	-19	8	16.8
9	15.0	2	11.2	1	-1	-15	-23	9	15.7
10	12.7	1	9.5	2	-2	-22	-27	10	13.9
11	11.2	1	8.5	2	-2	-22	-27	11	9.0
12	9.5	1	7.5	-1	-18	-27	-21	12	10.3
13	8.9	1	6.8	-3	-26	-21	-27	13	9.0
14	8.7	1	6.4	-5	-32	-21	-27	14	8.5
15	8.6	1	6.3	-7	-34	-21	-27	15	8.4
16	8.5	1	6.3	-7	-34	-21	-27	16	8.3
17	8.7	1	6.7	-5	-34	-21	-27	17	8.2
18	8.7	1	6.7	-5	-34	-21	-27	18	8.2
19	8.5	1	6.4	-7	-34	-21	-27	19	8.3
20	8.0	1	6.0	-13	-34	-21	-27	20	8.0
21	8.1	2	5.9	-12	-34	-21	-27	21	7.3
22	8.5	2	5.8	-8	-34	-21	-27	22	7.3
23	8.5	2	5.8	-8	-34	-21	-27	23	7.4
24	7.9	2	5.5	-8	-34	-21	-27	24	7.2

VK WEST — EUROPE (Long Path)

LTO	MUF	dbU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.4	1	7.5	1	7	29	8	-17
2	9.5	1	7.5	1	7	29	8	-17
3	10.2	1	7.5	1	7	29	8	-17
4	11.7	1	7.5	1	7	29	8	-17
5	12.2	1	7.5	1	7	29	8	-17
6	13.2	1	7.5	1	7	29	8	-17
7	14.7	1	7.5	1	7	29	8	-17
8	16.2	1	7.5	1	7	29	8	-17
9	17.2	1	7.5	1	7	29	8	-17
10	18.0	1	7.5	1	7	29	8	-17
11	18.0	1	7.5	1	7	29	8	-17
12	18.0	1	7.5	1	7	29	8	-17
13	18.0	1	7.5	1	7	29	8	-17
14	18.7	1						

HAMADS

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WANTED SA

- FOR Copying or copy of manual, Telequipment CRO model D65. Barry VK5BQ, PO Box 176, Stansbury SA 5582 or (08) 852 4482.

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ICOM Case History #27.
Dropped 3000 ft...
6 months in a rainforest...
yet still transmitting with its
memory intact.

Icon is a world leader
in communications. Just
ask any CBer, yachtsman,
pilot, or emergency
services personnel.
They'll tell you
Icon build
equipment of
outstanding
reliability and
durability.

And speaking of durability, the
following case history provides remarkable proof.

In 1991, flying from Byron Bay to Tambourine Village,



a Sapphire MkII hit
turbulence and went into
an unintentional loop.

An Icom IC-A20 VHF
airband transceiver fell from the
aircraft into the rugged rainforest terrain.
Six months later the unit was found, still
in working order, plus it had retained
its pre-set memory frequencies!

From the freezing Antarctic to outback heat,

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